# AN INVESTIGATION OF SOCIAL COST-BENEFIT ANALYSIS PRACTICE IN THE APPRAISAL OF PUBLIC DEVELOPMENT PROJECTS IN KENYA.


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# DECLARATION

This project is my original work and has not been submitted for a degree in any other University.

Signed: _____

Odock Stephen Ochieng

Date: 14th November, 2003



This project has been submitted for examination with my approval as the University Supervisor.

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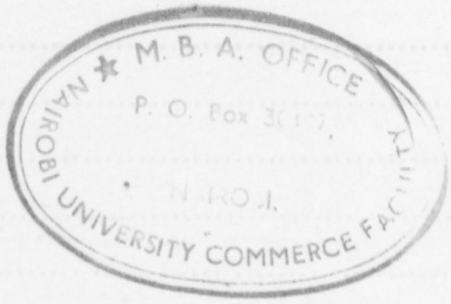
Date: 14th November, 2003


*"There is one final aspect to be considered in any degree of project failure. All success is rooted in either luck or failure. If you begin with luck, you learn nothing but arrogance. However, if you begin with failure and learn to evaluate it, you also learn to succeed. Failure begets knowledge, out of knowledge you gain wisdom, and it is with wisdom that you become truly successful."*

**The Standish Group International Inc, 1995.**

# DEDICATION

*To Brothers and Sisters, Kiki, Deo, Dayo, Roi, Faith, Meja, Caro, Toto, Mammi, Okothe, and Alili, for your moral and material support that made my academic dream come true;*




*To Step Mom, Julia, for your understanding and support during the entire period of study;*

*To the Almighty, for everything.*

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# LIST OF ABBREVIATIONS

| | |
|---|---|
| **AMREF** | African Medical and Research Foundation |
| **ARI** | Accounting Rate of Interest |
| **CBA** | Social Cost-Benefit Analysis |
| **CF** | Conversion Factor |
| **CIF** | Cost, Insurance, and Freight |
| **Cmnd** | Command |
| **CRS** | Catholic Relief Services |
| **E.g.** | Exampli Gratia (For Example) |
| **ERR** | Economic Rate of Return |
| **Etc.** | Et Cetera (And so on) |
| **FOB** | Free-on-Board |
| **GDP** | Gross Domestic Product |
| **IMF** | International Monetary Fund |
| **Inc.** | Incorporated |
| **LM** | Little-Mirrless |
| **NARC** | National Alliance Rainbow Coalition |
| **NGOs** | Non-Governmental Organizations |
| **NPV** | Net Present Value |
| **PIP** | Public Investment Programme |
| **PRSP** | Poverty Reduction Strategy Paper |
| **SCF** | Standard Conversion Factor |
| **SWR** | Shadow Wage Rate |
| **UK** | United Kingdom |
| **UNIDO** | United Nations Industrial Development Organization |
| **US** | United States |
| **WTP** | Willingness to Pay |

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# ABSTRACT

Social Cost Benefit Analysis (CBA) is the most useful branch of welfare economics especially in the appraisal of public projects in developing countries. In practice it is controversial due to its basis in value judgments. This study surveyed existing practices by practitioners in the light of its methodological shortcomings.

It found out that CBA has still not taken root in Kenya. To many in Kenya the discipline is still in its infancy stages, infact some do not know of such a technique while others only have a very slight idea of what it is. The study also found out that for those who undertake this exercise, the greatest difficulties they encounter have to do with valuation and shadow pricing for items that normally do not have market prices. Another finding was that, undertaking CBA is not a futile exercise; it actually increases project performance, in spite of the fact that this branch of welfare economics has been widely criticized.

Those who do not undertake CBA, give reasons that are all related to its core tenets of imputing monetary values to all items for the sake of economic formulae geared towards efficiency. According to the findings of the study, one of the major limitations that make CBA less worthwhile to use is that it conceives reality as static rather than as dynamic and that only a few factors under CBA can be varied at a time. Consequently it is proposes the dynamic conception of projects and the project environment by project designers as a viable alternative.

This also has implications for educators and planners in public sector projects. However the challenges of adopting this holistic perspective should not be underestimated given the heavy institutional investment in existing orthodox economic methodologies.

**Key words**: Projects, appraisal, social cost benefit analysis, systems dynamics, and complexity.

# *Chapter 1* INTRODUCTION

## 1.1 Background

Projects are the cutting edge of development. They are meant to make things happen. They expand the range of possibilities for individuals and communities, yet paradoxically; the commitments that projects require cut off other options. The challenge lies in ensuring that the changes are on the balance, for the better (Donahue, 1980). Projects whether in the public or private sector, are the backbone of any nation's economy. They are the basis of any development agenda such as industrialization and they are evident in every sector of the economy (Garashie, 1999).

The public sector is a very large portion of the economy in many developing countries in Africa and Asia. In some it comprises virtually the entire economy, save for minor activities (Chybire, 1974). Public projects are identified, planned and implemented by the government in relevant ministries with the assistance of Donors and NGOs to solve problems affecting citizens. They are geared towards improving the citizens' welfare and the country's economy as a whole (Public Investment Program, PIP, 1998/1999 – 2000/2001, 1997). This is one reason why the problem of public sector project appraisal has received wide and increasing attention. According to Little and Mirrless (1976), project appraisal involves making a more concrete assessment of the project's viability and its ability to meet its objectives in light of the information which has been obtained. The importance today of project appraisal and hence of Social Cost-Benefit analysis (CBA), to national economic planning cannot be overstressed (Rwigema, 1974).

CBA is undoubtedly the most used and arguably the most useful, form of applied welfare economics (Lal, 1974). According to Donahue (1980), CBA brings facts and values together. It establishes predictions of a project's impact and evaluates them in light of the proclaimed goals and priorities to provide concise, organized information. The province of CBA is mostly confined to public projects because the costs and benefits are defined in terms of social gains and losses (Dasgupta and Pearce, 1972). In the public arena, formal CBA is sometimes a controversial technique for thoroughly and consistently evaluating

the pros and cons associated with prospective policy changes. Specifically, it is an attempt to identify and express in monetary terms all the effects of proposed government policies or projects (Portney, 1993). The government's overall aim is to ensure that social welfare is maximized, subject to those constraints over which it has no control, such as tastes, technology, and resource endowments (Layard, 1972).

## 1.2 Projects Performance in Kenya

Project performance in less developed countries in general is an issue of great concern to their public, donor agencies, and governments. Actual achievements upon implementation are usually far from expectations during appraisal stage. This scenario is common with many investment projects, though they are well managed they are still poor investments because they produce the wrong products or satisfy a low priority need (Kibiku, 1998). It is for this reason that Kenya has had rocky relations with development partners both bilateral and multilateral. The 1990s have witnessed a steady decline in development assistance to Kenya occasioned by a perception of poor governance and mismanagement of public resources and development assistance (World Bank Project Bulletin, 2002).

According to the Public Expenditure Review (1997), only 2% of development projects undertaken by the Kenya government were completed on budget and schedule. The situation is not getting any better. For example, at the request of the Kenyan Government, the World Bank extended the closing date of some of the projects that were due to close at the end of year 2002. These include among others the Arid Lands and National Agricultural research Project (II) and The Economic and Public Aspects project (World Bank Project Bulletin, 2002). The future does not look brighter either. According to the Bulletin discussions are underway for extension or restructuring of a few other projects, which are planned to close at the end of the year 2003, but are unlikely to have been implemented by then. Examples of this are the Kenyan Urban Transport Infrastructure Project whose objective was to improve road networks in 26 towns, and the Nairobi - Mombasa Road project.

There are many reasons why development projects in Kenya have performed below expectations. One of the possible reasons according to conventional economic wisdom is the failure to undertake a proper Social Cost-Benefit Analysis (CBA) at the appraisal stage. For Example, the World Bank funded Early Childhood Development Project, which was initiated jointly by the Government, The World Bank, and NGOs including Aga Khan Foundation, Care Kenya, AMREF, CRS and Action Aid has not performed as expected (World Bank Project Bulletin, 2002). A possible reason could be that the initiators did not attempt to learn more about people's attitude towards education especially in rural villages. It did not occur to them that costs of children in rural villages attending school could outweigh the benefits: among the problems; the walk to school was on average many miles in each direction, it was expensive to provide food for children during school days, families need their children's help in the field, the school buildings are deteriorating, and most important, schooling does not improve the chances of getting a job (Caufield, 1996). A well-executed Social Cost-Benefit Analysis could have captured some of these issues. Therefore, how well is this being done? How well does the implicit economic (conventional) wisdom fit the complex project reality?

## 1.3 Statement of the Problem

Projects whether in the public or private sector are the backbone of any nation's economy (Garashie, 1999). One of the critical aspects in Project Management is the selection process (Ngunjiri, 1999). Selection involves forming an opinion on the decision options, expressing preferences between them and eventually deciding which one to implement (Cooke and Slack, 1991). Consequently, a number of conflicting criteria have to be taken into account. For example, the decision makers may wish to maximize welfare of the society, minimize losses from risky projects, consider political affiliation, the project's contribution to Gross Domestic Product (GDP), personal development and the image the government wants to create (Ngunjiri, 1999).

The importance of looking at the costs and benefits from the point of view of the society as a whole cannot be downplayed. This is what Chandra (1995) refers to as Social Cost-Benefit Analysis (CBA). A World Bank Study of 121 rural water and sanitation projects,

funded by World Bank and other Agencies, found that Social Cost-Benefit Analysis was the single most important element in determining success of a project (Caufield, 1996). Appraisals that ignore local knowledge, wishes, and concerns gives rise to poorly designed and fatally flawed projects.

The literature on CBA gives the impression that this branch of applied welfare economics has attained a very high level of sophistication. However, indications are that while it has made considerable advances on the theoretical front, it is still lacking in the realm of practice (Chybire, 1974). Not surprisingly the method has been dogged in much controversy (Rwigema, 1974).

Although many investment decisions in less developed countries are taken on political or non-economic grounds, the evaluation and appraisal of projects is necessary as it provides the relationship between costs and benefits (Ngunjiri, 1999). In Kenya, one easily gets the impression that this important phase is often overlooked. For example, the titanium mining project by Tiomin Resources Inc. at the Kenyan coast has been delayed largely due to concerns of a proper environmental assessment and failure to look into the plight of the affected families (East African Standard, April 3, 2003). Another project, Lake Victoria Environmental Management Project has been very slow for similar reasons (World Bank Project Bulletin, 2002). These characteristics are shared by very many other projects implemented by the government, donors and NGOs. This situation has resulted in increasing public concern on development projects pursued by the Government, Donors, and Non-Governmental Organizations (NGOs). Headlines such as *Mombasa Highway Nightmare Far from Over* (Daily Nation, March 3, 1999), *Government Should Inform Interest Groups How Executive Decisions are Arrived At* (Daily Nation, January 31, 1999), *NGOs Must Be Investigated*, (Daily Nation, March 23, 2001), *NGOs Slammed*, (East African Standard, June 6, 2000), *NGOs Takes Side By Fighting Poverty*, (East African Standard, May 2, 2001), and many more appear in our local dailies and magazines.

Very few studies have been undertaken on this extremely important area of CBA in Kenya. The most notable ones are those of Chybire and Rwigema both in 1974. Rwigema (1974) undertook a study to compare the Mishan and Little-Mirrlees' approaches in carrying out CBA. On his part Chybire (1974) limited himself to identifying the problems in estimating the costs and benefits of road projects in Kenya. Both of these studies took place at a time when the discipline was still in its infancy. From the foregoing discussions and considering the great need for well-appraised projects, the researcher poses the following questions: Do project analysts undertake CBA in appraising development projects in Kenya? How do they do it? How has doing this related with the performance of the projects?

## 1.4 Objectives of the study

1. To find out the extent to which project analysts carry out formal Social Cost-Benefit analysis in appraising public development projects in Kenya.
2. To find out the difficulties/ problems encountered by CBA practitioners in Kenya.
3. To get an opinion of CBA practitioners as to whether applying CBA results in improved performance of the projects.
4. To find out the major reasons why those who do not undertake CBA give.

## 1.5 Importance of the Study

1. ***Government***. The study is expected to be of assistance to the government policy makers as it will highlight to them whether whatever is put on paper is practiced on the ground.
2. ***Donor Agencies***, as it will highlight important issues, which they may overlook in the appraisal of public development projects, for example, ensuring that only projects that will improve the lives of many Kenyans are implemented.
3. ***Non-Governmental Organizations***. Of late there has been increased public outcry as regards the real motives of some NGOs in this country. This paper will introduce a framework that will enable them select only development projects that will improve the social welfare of Kenyans.

4. The study will form a basis for interested ***scholars and practitioners*** to research on and also add to the body of knowledge on Social Cost-Benefit Analysis.

# *Chapter 2* LITERATURE REVIEW

## 2.1 Definitions of terms

### 2.1.1 Project

Projects have been identified, planned, and implemented by man since the biblical times (Garashie, 1999). Some of the greatest and earliest projects undertaken by man include the construction of Pyramids in Egypt, Greece, South America, and Italy and the construction of the Great Wall of China, which runs 6400 Kilometers and stands 9 meters high (New Encyclopedia Britannica, 1974).

What then is a Project? Different Scholars and Managers have come up with different definitions which all say about the same thing. Solomon (1976) defines a project as a unit of purposeful activity with a beginning and ending point in time, that is chosen to be separately planned, analyzed, and administratively implemented. For example, such a unit could be construction of a new steel plant or drilling of a borehole. Cleland and Kerzer (1985) put it as a combination of human and non-human resources pooled together in a temporary organization to achieve a specific objective.

According to Garashie (1999), a Deputy Director of Planning in the Ministry of Planning and National Development, Project Management Department, defines a project as a Sequence of activities with definite beginning and end that utilize public resources to improve the welfare of the citizens and the county's economy as a whole. Being a civil servant, his definition is based on experience with projects financed through public funds by the Government, Donors like World Bank and IMF and NGOs. This research will adopt this definition.

In summary we see one thing emerging from all these definitions, that a project is a one-off undertaking where resources are used in expectations of returns. It has a specific starting point and specific ending point, intending to accomplish specific objectives.

### 2.1.2 Social Cost-benefit Analysis (CBA)

There are many definitions of CBA in readily available literature. In various ways they will all say about the same thing (Weick, 1993).

The Treasury Board of Canada (1976) defines it as a method of evaluating the relative merits of public investment projects in order to achieve efficient allocation of resources. It is a way of identifying, portraying and assessing the factors, which need to be considered in making rational economic choices. It is not a new technique. In principle, it entails little more than adjusting conventional business profit-and-loss calculations to reflect social instead of private objectives, criteria, and constraints in evaluating investment projects.

Stanbury (1988) remarks that the purpose of CBA is to improve or ensure allocative efficiency so as to increase economic and perhaps social welfare. It is a valuable tool, but by definition it cannot incorporate certain important aspects into the analysis, for example political (non-efficiency) objectives.

Weick et al (1988) defines formal CBA as a rigorous, quantitative, and data-intensive procedure which requires identification of nontrivial effects, categorization of these effects as benefits or costs, quantitative estimation of the extent of each benefit or cost associated with an action, translation of these into a common metric such as the dollar, discounting of the future costs and benefits into the terms of a given year, and a summary of all the costs and benefits to see which is greater. The logic of CBA also demands that these sums be compared across alternatives, a point neglected even by many of its proponents.

The central issue in CBA is the aggregate gain or loss to the society as a whole from a particular decision, and not the identification of winners and losers. In the economist's terms, the technique is concerned with efficient allocation of resources, not the distribution of income. (Weick et al, 1989). Chandra (1995) summarizes it simply as a

methodology developed for evaluating investment projects from the point of view of the society or the economy as a whole.

CBA purports to describe and quantify the social advantages and disadvantages of a policy in terms of a common monetary unit (Pearce, 1971). Thus, as an example, the building of a motorway will involve costs (disadvantages to the society) of construction, costs of maintenance and costs in the form of changes in noise level, pollution from exhaust, disfigurement of landscape and possibly, more accidents. The benefits (advantages) will consist of savings in traveling time by both commercial and private road users, reduced congestion and hence more time savings on roads which would have otherwise have been used and saving in size of vehicle fleets since fewer lorries can now be used more intensively to meet the same level of demand. In addition there will be reduced noise and nuisance if the new route now bypasses towns previously affected and, possibly reduced accidents.

CBA has been applied in a variety of government decisions: river developments, transportation, investment in human capital, economic development schemes, capital investment by crown corporations, birth control programs, urban renewal, research and development funding, and evaluation of regulatory programs (Stanbury, 1988).

### 2.1.3 Tradeable and Non-Tradeable Goods

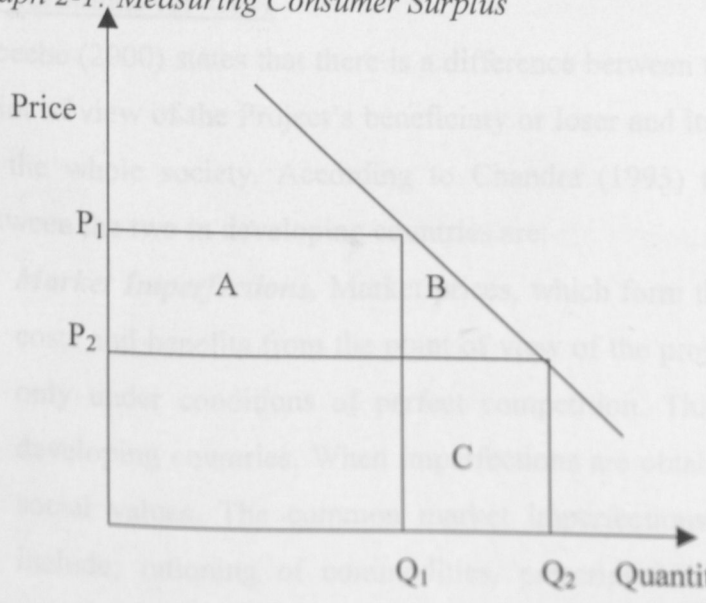
Typically, a project's inputs include material inputs, public utilities, labor, land, and services. Some of these goods and services are tradeable, and are not traded but are potentially tradeable. These distinctions are important because the valuation of each type of good is different. According to Belli, Anderson, Barnum, Dixon, and Tan (1998): ***Traded goods*** include those that are either imported or exported by a country. ***Tradeable goods*** include all traded goods and goods that the country could import (or export) under conditions of free trade, but it does not trade because of such trade barriers as import duties, e.g. material inputs are normally tradeable goods. ***Non-tradeable goods*** are those that by their nature either cannot be traded or are uneconomical to trade internationally. Real estate, hotel accommodation, haircuts, land, and other services fall in this category.

Non-tradeable goods also include goods whose cost of production and transportation are so high to preclude trade, even under conditions of free trade. In principle a good falls in this category if its CIF cost (landed price) is greater than the local cost, precluding importation, and at the same time, its local cost is greater than the FOB price precluding importation.

### 2.1.4 Consumer Surplus

Chandra (1995) defines Consumer surplus as the difference between what consumers are prepared to pay for a product and what they are actually paying. In principle, this increase in consumer surplus should be treated as part of the benefits of the project. Belli, Anderson, Barnum, Dixon, and Tan (1998) assert that measuring consumer surplus is straightforward under certain simplifying assumptions. Consider a project that lowers the price of a product from $P_1$ to $P_2$. As a result of the lower price, the quantity demanded rises from $Q_1$ to $Q_2$ as the graph below shows. Consumer surplus is the sum of areas A and B. Area A is what consumers save from price drop and is equal to the difference in price times the quantity sold at the old price.

*Graph 2-1: Measuring Consumer Surplus*




**Source**: Belli, Anderson, Barnum, Dixon, and Tan, (1998), ***Handbook on Economic Analysis of Investment Operations***, Operational Core Services Network Learning and Leadership Centre, January 26.pp 45

## 2.2 Steps in performing CBA

According to Donahue (1980), performing CBA can be seen in a series of steps: First, set the objectives the project should serve and fix boundaries - technical, temporal, social, - around the system. Second, identify the options open for project design and determine the resources each option requires and results it promises. Third, appraise each option by a criterion appropriate to the objectives; this involves estimating the values of inputs and outputs and discounting to take account of time. Fourth, summarize the information that has been collected and processed by computing the benefit-cost ratio, rate of return, or net present value and compare the alternatives. Finally, test the results through sensitivity analysis to ascertain their vulnerability to certain assumptions and predictions.

Donahue (1980) remarks that the five-step summary is a simplified description of the way the analysis works. In practice the process is seldom sequential. New alternatives appear in the course of analysis. Options are discarded as they are shown to be unworkable or dangerously dependent on shaky assumptions. Objectives evolve as the discovery of the possible reshapes and constrains the desirable.

## 2.3 Rationale for CBA

Mbeche (2000) states that there is a difference between the analysis of a project from the point of view of the Project's beneficiary or loser and its analysis from the point of view of the whole society. According to Chandra (1995) the main sources of differences between the two in developing countries are:

1. ***Market Imperfections.*** Market prices, which form the basis for computing monetary costs and benefits from the point of view of the project sponsor, reflect social values only under conditions of perfect competition. This is rarely, if ever, realized by developing countries. When imperfections are obtained, market prices do not reflect social values. The common market imperfections found in developing countries include; rationing of commodities, prescription of minimum wages and foreign exchange regulations.
2. ***Externalities.*** A project may have beneficial external effects, for example, roads, which benefits not only the project's target group but also the neighboring area.

Likewise, a project may have harmful external effects like environmental pollution. Such externalities are relevant in CBA because in such analysis all costs and benefits, irrespective to whom they accrue and whether they are paid for or not, are relevant.

3. ***Taxes and Subsidies.*** From a private point of view, taxes are definite monetary costs and subsidies are definite monetary gains. From the social point of view, however, taxes and subsidies are generally regarded as transfer payments and hence considered irrelevant.
4. ***Concern for savings.*** From the private point of view consumption and savings are treated equally. From a social point of view, however, the division of benefits between consumption and savings (which leads to investment) is relevant, particularly in capital scarce developing countries. In CBA a higher valuation is placed on savings and a lower one on consumption.
5. ***Concern for redistribution.*** A private firm does not bother how its benefits are distributed across various groups in the society. The society, however, is concerned about the distribution of benefits across different groups. Benefits going to the poor are considered more valuable than benefits going to an affluent section.
6. ***Merit wants.*** Goals and preferences not expressed in the market place, but believed by policy makers to be in the larger interest, may be referred to, as merit wants. For example, the government may prefer to promote an adult education programme or a balanced nutrition programme for school going children even though consumers in the market place do not seek these. While merit wants are not relevant from the private point of view, they are important from the social point of view.

## 2.4 Brief History Of Public Projects in Kenya

Records at the National Archives show that identification, planning and implementation of public projects in Kenya started in the Colonial Era. Some of the major projects undertaken by the colonial government include building of schools and dispensaries in the country, construction of Kenya-Uganda railway line, building of provincial administration offices among others. Since then, the post-colonial government has continued to undertake public projects with a view to improving the welfare of its citizens (Garashie, 1999)

## 2.5 Development Situation in Kenya

Over the post independent era (1964-2003), Kenya has transited from a high growth path in the 1960s; 6.6% average annual growth over 1964 – 1973, to a declining path, 5.2% over 1974 – 1979, 4% over 1980 – 1989 and 2.4% over 1990 – 2000 (Poverty Reduction Strategy Paper for the period 2001-2004, 2001). Kenya's economy has remained in recession over the last five years. After posing a positive growth of 1.2 %, from –0.2% in 2001, the economy grew by 1.1% in 2002 (Economic survey, 2003).

This unsatisfactory performance was due to stop-go macroeconomic policies, the low pace of structural reforms and government problems. The lack of sustained economic recovery in the 1990s resulted in an overall decline in per capita income. Economic prospects in the late 1990s was further been aggravated by net outflow of external funding from the public sector and an increased appetite for government consumption, (mainly wages and salaries), the general outcome has been that public investments declined more than overall investments (PRSP for the period 2001-2004, 2001). For example, in 1998, the numerical size of the government's total project portfolio both government and donor funded was reduced from a total of 1667 projects (1226 on-going and 441 new) to 982 (927 on-going and 55 new) (PIP, 1999/2000 – 2001/2002, 1998).

In the 1980s Kenya was among the major aid recipients in Africa (World Bank Project Bulletin, 2002). Since the 1990s, the Kenya Government has had rocky relations with development partners both bilateral and multilateral (NARC manifesto, 2002)[1]. In 1991, key development partners suspended aid to Kenya after realizing that the government was not committed to agreed reforms. Aid was temporarily restored between 1993 and 1997, and suspended again in 1997 after the government failed to demonstrate the necessary will to fight corruption. Since then, the country has had very poor relations with development partners. The main reason for failure to attract development partners' support has been the leadership's apparent lack of intention to make positive changes in the management of the economy (National Development Plan 2002-2008).

[1] NARC – National Alliance Rainbow Coalition – A coalition of opposition parties that was swept to power in Kenya in December 2002 principally on an anti-corruption crusade.

According to the NARC manifesto (2002), failure to deliver development goals resulted from the fact that the central government planners did not respond to the demands and priorities of the communities for whom they were mandated to plan. In many cases planners simply played political games with public funds, instead of investing in projects with the highest return for the taxpayer. Another cause of failure is that Central Government officers did not only plan but also implemented projects they themselves drew with little or no input from target beneficiaries. Examples of projects that were implemented in this manner include The Nyayo Bus Project, The Nyayo Tea Zone, The Nyayo Wards, The Nyayo Car, and The Nyayo Hostels in public universities. Most of them never saw the light of day because they were merely used to siphon money out of government to politically correct personalities (NARC manifesto, 2002).

In 1997, major donors to Kenya formed an Economic Governance Group, chaired by the World Bank, to address issues related to governance and assistance programs. This was superseded by the Kenya coordination Group, which was reactivated by the government to foster improved donor coordination and cooperation (World Bank Project Bulletin, 2002).

Project performance in Kenya has continued to deteriorate in spite of all the measures that The Government, The Donor Community and NGOs have put in place. This is evidenced by the increasing public outcry that has been reported in the local media. For example, The World Bank, at the request of the Kenya government extended the closing dates of some projects that were due to close at the end of the year 2002. One this is the Lake Victoria Environmental Management Project, which was initiated in June 23, 1998 and was supposed to end by 31st December 2002. The objective of the project was to maximize sustainable benefits to the riparian communities using resources within the Lake basin to generate food, employment, and income, supply safe water and sustain a disease free environment. To date, the performance of the project has remained slow due to weaknesses in project management and poor implementation oversight among other reasons. Another project is the Kenya Urban Transport Infrastructure project, which was

initiated with the objective of improving the road network in 26 towns. According to the World Bank Project Bulletin (2002), no further progress has been achieved under this project since June 30, 2002. The project remains suspended and discussions between the Government and the Bank continue.

Kenya is now under a new government, which has committed itself to the restoration of better economic governance with the national development objective of reducing current poverty levels by half by the year 2015 (PRSP for the period 2001-2004, 2001). Time is yet to tell whether it shall happen.

## 2.6 History of Social Cost-Benefit Analysis

The idea of measuring the net advantages of a capital investment in terms of society's net utility gains originated with Jules Dupuit's famous paper: "On the measurement of the utility of public works[2]". In his work, Dupuit pointed out that the 'political economy has not yet defined in precise manner the conditions that public works must fulfill in order to be really useful.' He then proceeded to define what we now call consumers surplus, the excess of consumers' willingness to pay for a good or service over and above its market price, as a measure of net welfare gain from a project. The first practical embodiment of net benefit maxim occurred in various pieces of United States legislation on water resources in the 1930s. The food control Act of 1936 established the '*principle of comparing benefits to whomsoever they may accrue with estimated costs*', thus indicating clearly the public investment decision (Dasgupta and Pearce, 1972).

Despite refinements to the concept and theory of consumers' surplus by Marshall, Hotelling, and Hicks, the practical application of the theory of public investment, which had been recognized by Dupuit, was not resurrected until the 1950s, with the formal advent of CBA (Pearce, 1971). Academic interest in this criterion was also growing and a number of critical comments appeared in journals throughout the 1950s. But the real

[2] Dupuit, J., (1844), ***On Measurement of the Utility Of Public Works***, Translated from French in *the International Economic Papers*, No. 2 (1952), page 83, London, England.

turning point came in 1958 with the simultaneous publications of works by Eckstein (1958), McKean (1958) and Krutilla and Eckstein (1958). The significance of these publications lay in their attempt to formalize public investment criteria in relation to the established criteria of welfare economics.

In 1962, the Harvard Water Resource Program published a monumental volume, which remains the most detailed statement of CBA principles in relation to water resource development. Having been developed in the US concerning multiple use of water resources, CBA was extended into fields such as manpower programming, transportation, and health analysis (Sewell, Davis, Scott and Ross, 1965). Henceforth it became a tool of internal government management.

In the United Kingdom, it was not until the very late 1950s that economists were recruited on a significant scale into the civil service. The earliest application was to Britain's first Motorway, the M1, the study being carried out by the road research laboratory in 1960 (Coburn, Beesley and Reynolds, 1960). Since then, the main application has been to transport projects. It was not until 1967 that official government directives were given to the nationalized industries to adopt CBA procedures, although in very limited contexts (U.K. Government: Cmnd 3437, 1967).

CBA has also been widely applied in underdeveloped countries to irrigation, hydroelectricity and general water supply programmes and transport investments. Since valuation procedures differ significantly in economies where there are large amounts of unemployed resources, usually labor, and severe constraints on other resources, such as capital, CBA techniques involve complexities which are not always present in studies carried out in full-employment economies. The most significant work of valuation procedure in developing countries is the study by Little and Mirrless (1969).

Interest in the theory and application has continued to increase in scope and depth. The rapid growth can be attributed to a number of factors. One has been the growth of large investment projects, absorbing large amount of resources, having repercussions over a

long time, or substantially affecting the prices or outputs of other products (Prest and Turvey, 1965). Along with the growth of investment projects, the relative size of the public sector in most countries has also risen. The growth is reflected in the scope and functions of the central government, local authorities, and public enterprises relating to the allocation of resources within the economy (Rwigema, 1974). Another reason is that appraisal techniques were already fairly well developed for private investment decisions where the outcomes-profits or sales were well defined (Dasgupta and Pearce, 1972).

Thus CBA has arisen in response to the demonstrated need for careful criteria for deciding on the direction and priorities of public spending. Mishan (1971) called it an applied branch of 'allocative economics'. It remains to add up that CBA has found greatest use in planning large capital projects, and also in quasi-commercial areas of government activity. The reason according to Rwigema (1974) is that the benefits of evaluating the net impact of a large and/or complex project would appear to exceed those of simple ones, in view of high manpower, time and cost involved. Neither must the choice of public sector investment projects be interpreted to exclude small sizeable ones (Rwigema, 1974). While it is true that private projects are only directly responsible to their private sponsors and public ones to the community as a whole, the point is made by Mishan (1971) that project appraisal should embrace not only public sector projects, but also those private sector projects, which require public support or approval.

## 2.7 Social Cost-Benefit Analysis Approaches

Generally three approaches are employed in undertaking CBA. These are:

1. Little and Mirrless Approach
2. UNIDO approach
3. World Bank Approach

A brief description of each method is as follows:

### 2.7.1 Little and Mirrless (LM) approach

Little and Mirrless (1974) provided a method for social investment decisions. In brief, they proposed the following techniques:

1. Measuring the values of outputs (benefits) and inputs (costs) with shadow prices.
2. Using border prices as shadow prices for traded inputs and outputs, or in cases where demand or supply is not independent of price, using marginal revenue or cost to the country in foreign exchange, as a first approximation.
3. Where possible, using costs, themselves measured at shadow prices, as shadow prices for non-traded inputs.
4. Using conversion factors (CF), estimated separately for a number of different broad categories of inputs and outputs to calculate shadow price from market prices for most minor inputs and outputs.
5. Using shadow wage rates (SWRs), market wage rates discounted by a conversion factor estimated from an overall study of the economy, and depending in particular on a judgment that public income is more valuable at the margin than private income.
6. In cases where no other rule is applicable, using a standard conversion factor (SCF) to deduce the shadow price from the market price, to be estimated by comparing domestic market prices with border prices for traded goods, and others for which a sound estimate of the shadow price is available.
7. Estimating the private and public parts of the net social costs and income of the project, so that private income and costs could be discounted relative to public income and costs, and giving a low weight to private profit income.
8. Basing the shadow prices used on the forecasts of border prices and market prices, not on their current values.
9. Discounting net social profits so calculated by means of an accounting rate of interest (ARI) that is high or low enough to be expected to ration investment projects in the whole economy to funds available, a rate that could vary over time, but in no case using a discount rate less than the rate available for investment in international capital markets.
10. Allowing for uncertainty only to the extent that profitability of the project was expected to be correlated with the general state of the economy.

11. In the case of large projects, allowing for changes in prices brought about by their introduction, and estimating the incremental value of outputs and inputs by 'surplus calculations.'
12. Converting all external effects of the project to numerical terms by making some estimate of the cost or value in terms of public income and including them directly in the calculation of present social value of the project.

### 2.7.2 UNIDO Approach

The UNIDO approach was first articulated in the ***Guidelines for Project Evaluation*** (Dasgupta, Sen, and Marglin, 1972), which provides a comprehensive framework for CBA in Developing countries. The rigor and length of this work created a demand for a succinct and operational guide for project evaluation in practice. To fulfill this need, UNIDO came out with another publication, ***Guide to Practical Project Appraisal*** in 1978 (Chandra, 1995). The UNIDO method of project appraisal involves five stages.

1. *Calculation of financial profitability of the project.* This profitability is the one that Marglin (1977) calls commercial profitability, that is, profit calculated from the point of view of an owner for whom the assumed goal is the flow of funds into the company treasury.
2. *Obtaining the net benefit of the project measured in terms of economic (efficiency) prices or shadow prices.* Market prices represent shadow prices only under conditions of perfect markets, which are almost invariably not fulfilled in developing countries. Hence there is need for developing shadow prices and measuring net economic benefits in terms of these prices. The specification of the UNIDO numeraire is: "net present consumption in private sector in terms of constant price in domestic currency." The Guide offers specific guide on how to shadow price Tradeable and non-tradeable inputs and outputs, Externalities, Labor inputs and Capital inputs. All the inputs and outputs are then converted into their conversion equivalents. The UNIDO method expresses the numeraire in terms domestic currency. So the foreign exchange input of the project must be identified and adjusted by an appropriate premium. This means that the valuation of inputs and outputs that were measured in

border prices has to be adjusted upward to reflect the shadow price of foreign exchange.

3. *Adjustment for the impact of the project on savings and investment.* Most of the developing countries face scarcity of capital. Hence, the government of these countries are concerned about the impact of a project on savings and its value thereof. This stage seeks to answer the questions:
   I. Given the income distribution impact of the project, what would be its effects on savings?
   II. What is the value of such savings to the society?
4. *Adjustment for the impact of the project on income distribution.* Many governments regard redistribution of income in favor of economically weaker sections or economically backward regions as a socially desirable objective.
5. *Adjustment for the impact of the project on merit goods and demerit goods whose economic values differ from their social values.* A merit good is one for which the social value exceeds the economic value. For example, a country may place more social value than economic value on production of oil because it reduces the dependence on foreign supplies. The concept of merit goods can be extended to include a socially desirable outcome like creation of employment. In the case of demerit goods, the social value of the good is less than its economic value.

### 2.7.3 World Bank Approach

Lyn Squire and Herman Van der Tak engineered the World Bank Approach to CBA. In their book ***Economic Analysis of Projects***, which they published in 1975, they give a detailed description of the approach. The following is a brief description of the main features of The World Bank Approach (Squire and Van der Tak, 1975).

1. The Numeraire is; Uncommitted Public Income measured in terms of convertible currency, discounted and expressed in domestic currency.
2. The approach values inputs and outputs at world market prices just like Little and Mirrlees Approach but with minor adjustments.

3. Traded goods enter Cost-Benefit calculations at Border prices; that is the prices that prevail on the World Market, with adjustments made for transport costs to and from the border.
4. Non-traded goods and services are broken down into potentially traded goods and unskilled labor. After the breakdown, potentially traded goods and services are valued with conversion factors, which equate them to international prices of comparable items. Squire and Van der Tak also use a standard conversion factor if the longer process is not worth the effort. Unskilled labor, a special category of inputs, is valued with its own shadow price.
5. Several factors can contribute to a discrepancy between market wage and the real costs of hiring unskilled labour. The approach's formula for shadow wage rate focuses on changes in both current and future consumption resulting from new employment. The basic opportunity cost, plus direct and indirect incidental costs, is adjusted by a weighted correction factor that counts some proportion of this commitment to current consumption as a social benefit rather than a cost.
6. The discount rate is a crucial variable in CBA. Squire and Van der Tak adapt the idea of Accounting Rate of Return (ARI). Like Little and Mirrlees, they start from a time preference rate and then adjust it by the premium on public investment funds and the marginal productivity of invested resources.
7. The approach has a less explicit treatment of institutional arrangements. Given that it is addressed largely to the World Bank and other international agencies, detailed recommendations for structuring domestic decision-making institutions may be inappropriate.
8. CBA requires that social values be articulated and then translated into clear quantified parameters. Squire and Van der Tak call their approach "side-to-side" approach to fixing values. Weights and judgments are worked out collaboratively and reflect the objectives of both the national government and the lending agency.

### 2.7.4 Comparison of the three approaches

In general, they all aim at balancing equity and efficiency objectives from the point of view of society. They differ in emphasis and methodological details, but not in principle (Donahue, 1980). However the main differences are highlighted below:

*1. **Numeraire*** - Little and Mirrless (1974) nominate as their numeraire, *Uncommitted Government Income measured in terms of foreign exchange*. Dasgupta, Sen, and Marglin (1972) for the UNIDO approach propose *Aggregate Consumption*. Squire and van der Tak (1975) for The World Bank Approach suggest: *Uncommitted public Income measured in terms of Convertible Currency*.

*2. **Foreign Exchange*** - The UNIDO methodology uses a shadow exchange rate which functions as a correction factor and sets the shadow prices of foreign commodities on a level with the prices of comparable domestic goods and services. The Little and Mirrless system of shadow pricing is valuing project inputs and outputs at world prices. Squire and Van der Tak's World Bank Approach also adopt this basic strategy with only minor adjustments.

*3. **Investment Versus Consumption*** - Generally, for developing countries, CBA should favor projects which route a large portion of their benefits into further investment rather than current consumption (Donahue, 1980). All the three methodologies provide the mechanics for expressing this priority in quantitative terms.

*4. **Discounting*** - The discount rate is a crucial variable in CBA. Dasgupta et al (1972) UNIDO methodology uses a single rate for adjusting future resource flows, the Social Discount Rate. This rate is fixed by political value judgment of society's time preference, the priority of present versus future consumption (Donahue, 1980). Little and Mirrless (1974) approach begins with a time preference rate, the Consumption Rate of Interest. They go on to develop an Accounting Rate of Interest, defined as the rate of fall in the value of their numeraire, uncommitted income. Squire and van der Tak (1975) like LM

start from a time preference rate and then adjust it by the premium on public investment funds and the marginal productivity of invested resources.

***5. Political Context*** - CBA requires that social values be articulated and then translated into clear, quantified parameters (Donahue, 1980). LM Approach propose that a "Top-Down" mechanism, where high level officials, would specify priorities and commit them to numbers, which it would then pass to project designers and evaluators (Little and Mirrless 1974). Dasgupta et al (1972) are skeptical of this strategy, and propose for the UNIDO approach a "Bottom-Up" mechanism for setting weights. The key to this approach is a special sort of sensitivity analysis, testing of several alternative project designs in terms of different values for the discount rate, distribution weights and so on. These alternatives would be submitted to political decision makers who further test and refine them before they are eventually used. The World Bank Approach uses a "Side-to-Side" approach to fixing values. The weights and judgments are worked out collaboratively and reflect the objectives both of the national government and the lending agency (Squire and van der Tak, 1975).

## 2.8 Criticisms of CBA

CBA is theoretically lodged in welfare theory and partial equilibrium analysis, which are essentially static and rigorously formal bodies of economic theory. While adequate for many purposes, CBA has some important drawbacks, which reflect its origins, particularly the assumption that only a few factors under analysis can be varied while all others such as prices in general, tastes and preferences, and technology are held constant. This assumption may be realistic enough if the project in question is small and therefore suited to marginal analysis, but it becomes dubious if the project is large in relation to the economic universe (Weick et al, 1989).

There are also other problems. Manning (1987) points to failure to define whether the perspective is that of a firm or of society, selectivity in incorporating externalities, subjectivity of decisions on what is included and excluded, the use of inappropriate discount rate, and the appearance of providing simple answers to complex questions.

Stockoe (1988) mentions that attempts to incorporate shadow prices for goods without market values is highly discretionary and perhaps inappropriate, that CBA gives primacy to the notion of efficiency which may be one of the lesser social goals, that CBA is based on simple "static efficiency" not "dynamic efficiency" where new technologies can emerge, that CBA does not deal well with irreversible social losses, and that much of the analysis is conducted away from public scrutiny.

Weick (1993) asserts that CBA is essentially "incremental" or "marginal" in its approach and has no place for cumulative effects of assessment. It is "forward looking", focusing on additions to the economy, and regards the past economic choices as "sunk" or irrevocable, and therefore, as carrying no weight in making current choices. It would not for example, accept the argument often advanced by politicians that further expenditure should be made on a project simply because a great deal of public money has gone into it already. Weick (1993) also adds that many of the critics of CBA have had problems with the use of the Long-term market rate of interest as the discount rate. The concern according to him is that a rate based on market transactions is inappropriate to non-market choices. Along with a market based rate come assumption about market behavior. For example, those individuals, expressing time preference, rationally value present returns over future returns. While this may reflect how people behave in the market, it is less likely to reflect how they behave with respect to conservation of wilderness resources.

The use of market-based rate overvalues short-term costs and undervalues long-term benefits and therefore biases inter-temporal decisions including inter-generational choices in favor of the present (Weick et al, 1989). When an agency invests in the environment, for example a national park, pay-offs may take a long time to mature. A market-based discount rate would likely render such pay-offs negligible in present value terms and in relation to costs, which tends to occur upfront. As yet another problem, the long-term pay-offs may not be a kind, which is amenable to economic techniques such as shadow pricing.

More other critics of the method have arisen. Bryne (1987) imputes that CBA ascribes little value to democratic processes of decision-making, preferring calculation to consent as the basis of the public choice. It ascribes no special importance to the ideals of democratic freedom and justice, reserving ideal status for the purportedly objective and efficient decision. Ultimately it is right reason, not democratic participation or values that is cherished and nourished under CBA. Schmid (1989) argues that there is no way politicians can regard CBA independent information to be weighed, somehow, along with other inputs to make a decision. Consequently he concludes that CBA is either the politician's decision, or it is nothing at all.

Iverson and Alston (1993), points out that even when analyzing alternative means to achieve given ends net present value may be useful in identifying inefficient means. By eliminating inefficient means, the choice would be among alternatives, each of which efficiently achieved different goals or goal set. This suggests that for the final choice, between efficiently designed alternatives, ends not means, and certainly not efficiency would be at issue. The point is; once the most efficient way to achieve a given theme is identified, further comparison between ends or goals using net present value make no sense.

Waldrop (1992), states that the trouble with CBA is that the approach generally assumes that the problems are well defined, the options are well defined, and that the political wherewithal is there, so the analyst's job is to simply put numbers on costs and benefits. Unfortunately for the standard theory, however, the real world is almost never that well defined, particularly when it comes to environmental issues. He continues that all too often, the apparent objectivity of CBA is the result of slapping arbitrary numbers on subjective judgments, and then assigning the value of zero to things that nobody knows how to evaluate.

Adams (1993) argues that the problem with the Willingness-to-Pay measure is that it will almost yield nonsense results when used to measure environment losses. Substituting a Willingness to accept value instead of a Willingness-to-Pay measure does not make the

method moral. For example, to ask the Aboriginal inhabitants of Kakadu what they would be willing to accept for something that their culture holds sacred would be an attempt to corrupt them; that which is truly sacred is not for sale. Many non-market goods, the most important non-market goods, are defiled by attempts to measure them with the measuring rod of money.

Weick (1993) adds that in applying market criteria to allocation of resources between private and public uses, or among various public uses, very real differences between objectives of the public and private sectors need to be recognized. The private sector's objective is profitability, an immediately and widely understood criterion. In the public sector, "bottom-lines" are difficult to define and estimate. Very often, nothing specific is being sold to individuals: whatever is done, is done for reasons which individuals may find difficult to identify. Unlike revenues, benefits may be difficult to isolate and state in quantitative terms, or the payoff from a particular policy or action may be distant. To insist that benefits must exceed cost under such circumstances is probably all right as a general principle, but to insist that this principle apply rigorously and quantitatively will not likely result in much more than bad arithmetic.

Dasgupta and Pearce (1972) also add that disputes exist over the selection of the social discount rate. According to Caufield (1996), the social discount rate is merely an opinion rendered in numerical form. It is easily manipulated. It is the product of assumptions, arbitrarily chosen, that go into its calculation. For example, the economic rate of return (ERR) of India's Sardar Sarovar Dam on The Narmada River[3] was originally calculated at just over 11% with the World Bank as the donor. At the time the World Bank's board was unhappy with economic rate of returns lower than 12%. By redoing the Analysis, using different assumptions, the Bank's staff was eventually able to obtain a 13% ERR.

[3] There is in the heart of India, a sacred pool surrounded by temples and shrines. From this pool rises India's Holiest River, The Narmada. Since ancient times, pilgrims have come here to be blessed by the river as it begins its 800 miles journey westwards through the hills, forests, and plains of three states to the Arabian Gulf. India began thinking about damming the Narmada, its fifth longest river in 1946. The official Narmada Valley development plan called for 30 major, 135 medium, and 3000 small dams to be built on the Narmada and its tributaries over the next 50 years. The centerpiece of the scheme was to be the Sardar Sarovar Dam, stretching 4000 feets across the river and rising to a height of a 45-storey building. (Caufield 1996, ***The holiest River***, Masters of Illusion, pp 1.)

This done, the project was presented to and approved by the board. To date the project has never been completed.

## 2.9 Why then the use of CBA?

It is only fair at this point to ask what use can be made of this technique, which is still so much shrouded in controversy. Rwigema (1974) poses the question, "is it infact, anything more than an idle academic exercise, of no use to serious minded practical project appraisers?"

In spite of the criticisms that have been advanced on CBA, Dasgupta and Pearce (1972) maintains that the alternatives are just as vulnerable to changes of arbitrariness indeed often more so. To them criticisms of CBA are only admissible if they can demonstrate alternative procedures are in someway superior. To this end, there must be a criteria for superiority e.g. whether the procedure is objective, whether it records society's preferences, whether it safeguards minority interests, gives adequate weight to heritage passed on to future generations and so on. Failure to agree on criteria for what constitutes an acceptable criterion will of course account for much of the failure to agree on the desirability of using one particular prescriptive model such as CBA. But whatever criteria are chosen, however, it has yet to be shown that CBA analysis compares unfavorably with either the political or the planning process (Dasgupta and Pearce, 1972).

Joshi (1972) concludes that in the end, one must emphasize that project evaluation is not a subject for the perfectionist. One demands of a project selection criterion that should be grounded in economic theory, that it should make relevant simplifications about reality, that it should be simple and practical to use, and that it should be flexible enough to deal with complex problems. Perhaps one asks too much, and no single criterion can meet all the demands perfectly. This is the reason why Peters (1968) cautions that CBA is not a technique providing an exact measure, which can be 'switched on' to any particular problem. It may help in concentrating the mind on the basic issues, but it appears unlikely that its use is going to solve a broad range of important problems in the immediate future.

Cautious acceptance of the discipline would thus appear to be more realistic alternative. Blanket approval or condemnation of the method is impossible (Rwigema, 1974). Weick (1993) asserts that the most important issue, then, is to understand the circumstances under which CBA may be useful, and when it may result in misleading conclusions and decisions.

## 2.10 CBA Studies in Kenya

Very few studies have been done in Kenya on the area of CBA. To be precise only two, both of which were undertaken way back in 1974.

Acknowledging the pervasive controversy surrounding ways to derive shadow prices, Rwigema (1974) undertook a comparative analysis of Little-Mirrless and Mishan's methods of valuing social costs and benefits. Being the two leading methods at the time, one called for world prices, and the other preferred domestic prices for valuing commodity inputs and outputs. The two methods also disagree on how to derive the 'social' wage rate of labor, not to mention the 'social' discount rate. He compared and contrasted these issues at the level of theory and then proceeded to demonstrate the practical significance of the same issues. He did this by analyzing an actual project undertaken in Kenya, from the point of view of each method. He found out that the two methods did not necessarily lead to discordant results. He carried out a sensitivity test and found out that the results were surprisingly similar. Consequently he recommended to the government of the day:

- To ensure that enough people should be trained to undertake the exercise continuously and consistently.
- To ensure that the systematic social project appraisal should be gradual involving a trial and error learning period.

He however cautioned that CBA must be seen in its proper perspective, with its promises and shortcomings, if sensible use is to be made of it as a broad-based planning (allocation) technique.

Chybire (1974) focused his attention on what according to him seemed to be a fundamental problem area in CBA, namely the Measurement of Costs and Benefits of public sector projects. His research was borne out of the premise that theoretical approaches to the estimation of a project's costs / benefits which had been advanced had occasioned project analysts in the field more problems than they had helped solve. Some of the problems that the planner encounter in practice arises from difficulty in measuring some of the concepts he has to use. But a good number of his troubles seemed to spring from the complexity of the procedures and models that have been advanced by writers.

Taking a real case study of a road project, Chybire identified three distinct problems. First, identifying what the costs and benefits of a road project should be. An important source of difficulty he encountered here was the need to incorporate unquantifiable variables such as government policy and other value judgments in deciding what is or would be best for the society. Second, evaluating the cost / benefit items that have been identified. The major problem as he found out arose from establishing a procedure for adjusting resource market prices to reflect the value that society rather than individuals attaches to economic resources, that is, a mechanism for shadow pricing. Third, was the statistical problem, that is, the inadequacy of data for project evaluation. A problem, which he found out, could be overcome only in the long run. He focused on the first two problems. Consequently, he concluded that, it is the nature of the costs and benefits of a road project, hence the manner in which they are defined, that gives rise to the identification and measurement problems which so much frustrate the efforts of road project analysts.

From the above it can be seen that CBA is an established powerful method but it is still very controversial. This research was to find out the current practice of CBA in the appraisal of public development projects in Kenya and suggest a way forward if need be out of the quandary.

# *Chapter 3* RESEARCH METHODOLOGY

## 3.1 The Population

The population of study was all project analysts and organizations that appraise public development projects in Kenya.

## 3.2 The sample and sampling technique

Stratified sampling was employed. Project analysts were drawn from the following categories:

1. ***Donor agencies***. These are organizations, which have their head offices in western countries and have branches in other parts of the world and their function is to provide financial and technical support to developing countries. A sample of ten donor agencies was selected randomly, from which project analysts were drawn and administered questionnaires.
2. ***Government ministries***. A total sample of twenty-one analysts was drawn from these ministries.
3. ***Non-Governmental organizations***. Only NGOs that deals with development projects were be considered. A sample of ten NGOs was selected randomly from which analysts were drawn.
4. ***Development consultants***. Are private consultants who are neither employed by the government, donor agencies, nor NGOs, but are hired on contractual basis to perform specific assignments. Since there was no available list, a sample of ten was selected using snowball sampling where initial respondents provided referrals.
5. ***Academics***. Are University lecturers who double up as consultants. Since not every lecturer is a project consultant Snowball sampling was employed by way of referrals. Again here a sample of ten was randomly selected mainly from the Departments of Economics, Agricultural economics, and Institute of Developmental studies, among others.

In total, a combined sample of 62 project analysts was chosen.

### 3.3 Data collection method

Primary data was collected using a structured questionnaire that was completed by the respondents. The questionnaire consists of both open ended and closed ended questions. It was administered through the "drop and pick later" method.

The questionnaire has four parts. Part A consists of questions aimed at obtaining general information about respondents. Those who undertake Social Cost-Benefit Analysis in appraising the projects filled part B. This part is divided into two sections. Section I obtains general information on the methodology while section II focuses on the problems encountered in undertaking CBA. Those who employ alternative methodologies to fulfill the same objectives as CBA filled part C. Those who do not undertake CBA or employ any other alternative methodology filled Part D.

### 3.4 Data Analysis Technique

The questionnaires were edited for accuracy, uniformity, consistency, and completeness and arranged to enable coding and tabulation before final analysis. The data was coded and cross tabulation done to enable the responses to be statistically analyzed. Statistical Package for Social Scientists (SPSS) was used. Descriptive statistics were used to analyze the data by way of percentage / proportion and frequency distributions. These were appropriate because of the qualitative nature of the variables.

# *Chapter 4* FINDINGS AND DISCUSSIONS

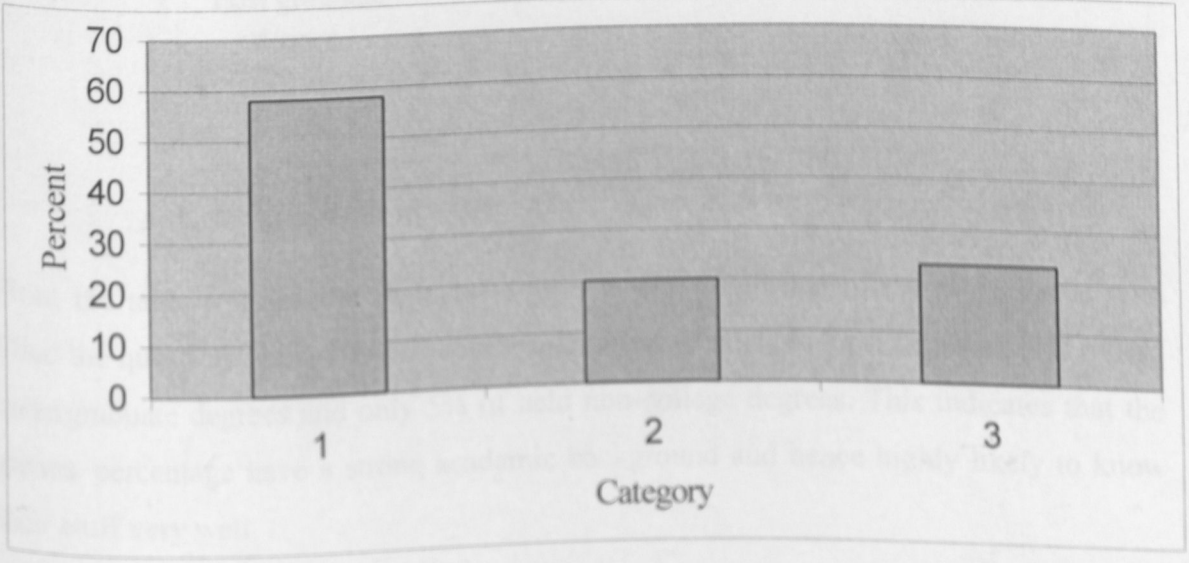
## 4.1 Summary Statistics

Of the 62 sampled, 45 responded, a reasonably high response rate of 65 percent. 23 indicated that they undertake CBA, 8 did not but use alternative methodologies to achieve the same objective while 9 indicated that they do not undertake CBA or any other methodology. 5 questionnaires were rejected for clerical errors and inappropriate responses. This data is represented in the table 4-1 and graph 4-1.

*Table 4-1: Different Categories as regards CBA application.*

| Category / Description | Frequency | Percent (%) |
|---|---|---|
| 1. Those who undertake CBA methodology | 23 | 58 |
| 2. Those who do not undertake CBA but employ alternative method. | 8 | 20 |
| 3. Those who do not undertake CBA or employ alternative method | 9 | 23 |
| **Total** | **40** | **100** |

*Graph 4-1: Different Categories as regards CBA application.*



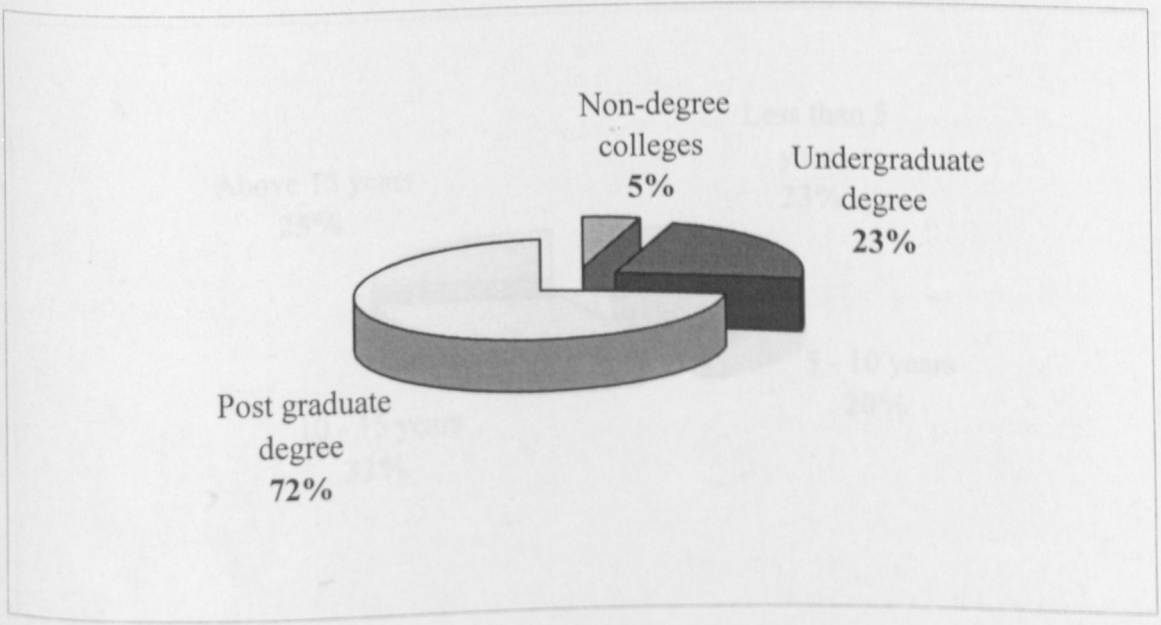
## 4.2 General information

### 4.2.1 Academic Level of the Respondents

*Table 4-2: Academic Level of the Respondents.*

| Academic Level | Frequency | Percent (%) |
|---|---|---|
| Non-degree colleges (Diploma, Certificate, etc) | 2 | 5 |
| Undergraduate degree | 9 | 23 |
| Post graduate degree | 29 | 72 |
| **Total** | **40** | **100** |

*Chart 4-1: Academic Level of the Respondents.*




From the table 4-2 and the chart 4-1 above, it was found that of the respondents who filled the questionnaires, 72% of them were holders of post graduate degrees, 23% of had undergraduate degrees and only 5% of held non-college degrees. This indicates that the greater percentage have a strong academic background and hence highly likely to know their stuff very well.

### 4.2.2 Length of Experience in Project Management

*Table 4-3: Length of Experience in Project Management.*

| Experience | Frequency | Percent (%) |
|---|---|---|
| Less than 5 years | 9 | 23 |
| 5 - 10 years | 8 | 20 |
| 10 - 15 years | 13 | 32 |
| Above 15 years | 10 | 25 |
| **Total** | **40** | **100** |

*Chart 4-2: Length of Experience in Project Management.*

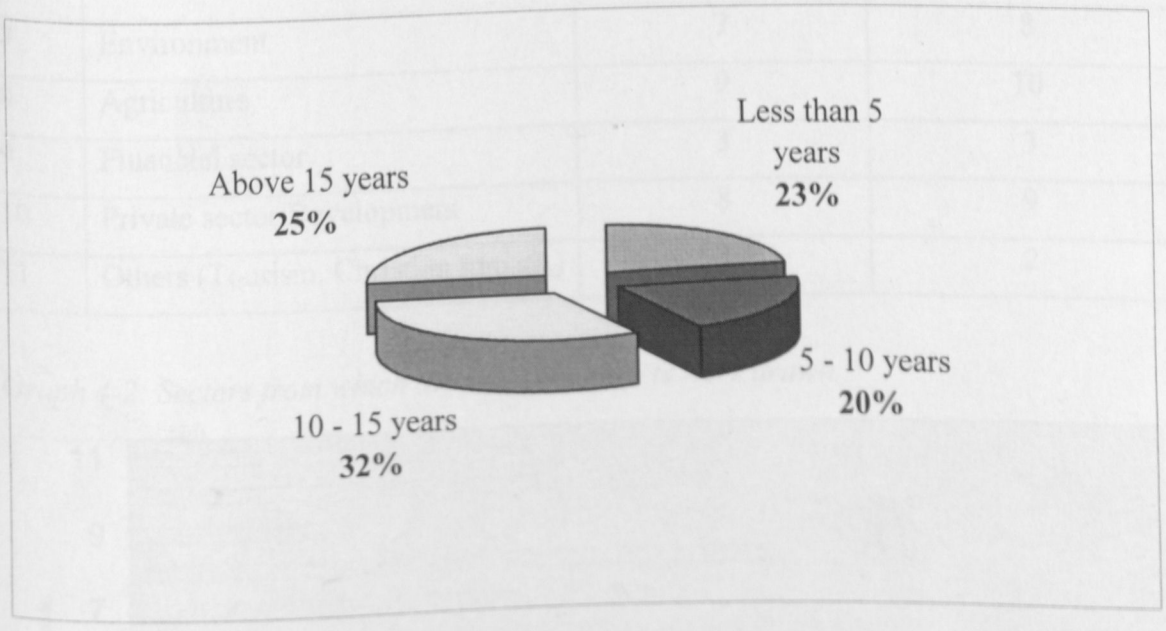



Table 4-3 and chart 4-2 above shows that 23% of the respondents surveyed had less than 5 years experience in project management. 20% had experience of 5 – 10 years. This shows that 57%, a significantly large percentage had a high level of experience of above 10 years, a strong indication that we are dealing with people who have a high level of knowledge in project management.

### 4.2.3 Sectors from which the Project Analysts were drawn

Respondents were asked to indicate which sector(s) they appraised projects in. The sectors have been classified according to the World Bank classification. The results are shown in the table 4-4 and graph 4-2.

*Table 4-4: Sectors from which the Project Analysts were drawn.*

| Code | Sector | Frequency | Percent (%) |
|---|---|---|---|
| 1 | Energy | 7 | 8 |
| 2 | Water | 13 | 15 |
| 3 | Roads | 12 | 14 |
| 4 | Education | 9 | 10 |
| 5 | Health | 11 | 13 |
| 6 | Gender issues | 6 | 7 |
| 7 | Environment | 7 | 8 |
| 8 | Agriculture | 9 | 10 |
| 9 | Financial sector | 3 | 3 |
| 10 | Private sector Development | 8 | 9 |
| 11 | Others (Tourism, Christian impact,) | 2 | 2 |

*Graph 4-2: Sectors from which the Project Analysts were drawn.*

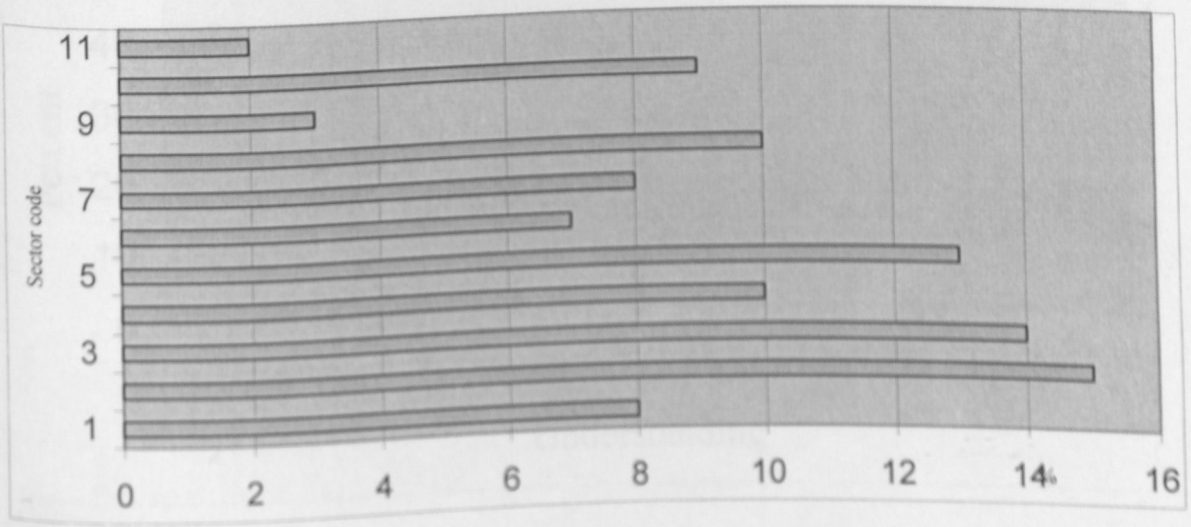


Table 4-4 and graph 4-2 show us that virtually all the sectors according to the World Bank classification are well represented.

## 4.3 Issues on the Practice of CBA

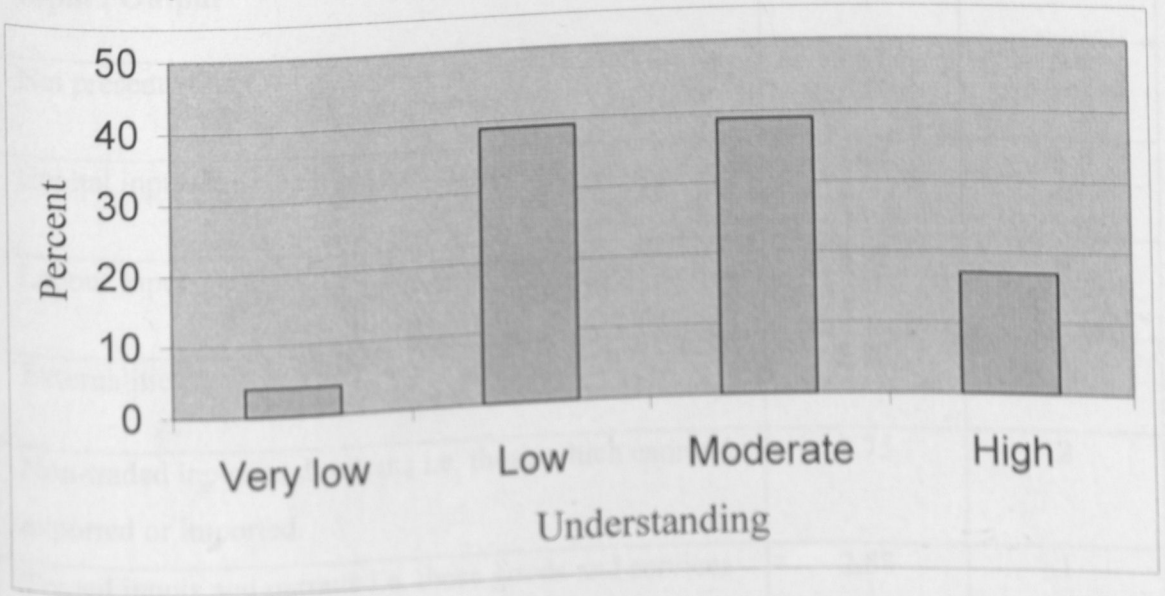
### 4.3.1 Inferred Understanding of CBA by those Who Claimed to Undertake It.

Based on some questions, responses were scored and respondents rated on their understanding of the CBA methodology in general. The questions were designed to test for consistency in response. The results are shown in table 4-5 and graph 4-3.

*Table 4-5: Inferred Understanding of CBA by Those Who Claimed to Undertake It.*

| Understanding | Frequency | Percent (%) |
|---|---|---|
| Very low | 1 | 4 |
| Low | 9 | 39 |
| Moderate | 9 | 39 |
| High | 4 | 17 |
| **Total** | **23** | **100** |

*Graph 4-3: Inferred Understanding of CBA by Those Who Claimed to Undertake It.*



Of the 58 percent of respondents who claimed to use CBA, only 56 percent (approximately 13 respondents) rate moderate or high level of understanding. The rest must be practicing a 'mix and match' or ad hoc form of CBA. Some simply do not understand it while others use their own rules of thumb in deciding what aspect to include or exclude. This in itself is not a problem as long as it is informed judgment whereby CBA is used to clarify issues and focus the mind on relevant facts (Peters, 1968: Rwigema, 1974; Weick 1993).

### 4.3.2 Deviation of forecasted values of Inputs and outputs of the project from the actual results upon conducting a post-implementation audit.

Of the 23 respondents who indicated that they undertake CBA, 12 of them indicated that they have conducted a post-implementation audit of a project they previously appraised. These respondents were asked to indicate on a 5-point likert scale the average deviation of the various categories of inputs and outputs of the projects. 5 represent the largest deviation while 1 represents no deviation at all. The results are shown in table 4-6.

*Table 4-6: Deviation of actual inputs and output values from ones forecasted at the appraisal stage.*

| Input / Output | Mean | Rank |
|---|---|---|
| Net present value | 3.67 | 6 |
| Capital inputs e.g. facilities and equipment. | 3.42 | 5 |
| Labour inputs, both skilled and unskilled labour. | 2.92 | 4 |
| Externalities | 2.83 | 3 |
| Non-traded inputs and outputs i.e. those which cannot be exported or imported. | 2.75 | 2 |
| Traded inputs and outputs i.e. those goods and services which can be exported. | 2.58 | 1 |

The results indicate that the extent of deviation of actual values of traded and non-traded inputs and outputs is not very significant from that which is obtained from the appraisal stage. However the deviation is more significant for capital and labour inputs and externalities. This shows that the forecasted values for these inputs and outputs are less likely to reflect the actual results upon implementation and hence are more unrealistic.

### 4.3.3 Does CBA Improve Overall Relative Project Performance?

Each performance dimension was rated on a five point likert scale with 5 representing the greatest positive improvement in performance while 3 representing no improvement at all. 1 represents highest negative improvement in performance. The results in table 4-7 were obtained.

*Table 4-7: Descriptive Statistics of the various performance dimensions.*

| Performance dimension | Mean | Standard Deviation |
|---|---|---|
| Client satisfaction | 3.50 | 0.67 |
| Public Acceptance | 3.50 | 1.17 |
| Time | 3.25 | 0.75 |
| Quality | 3.08 | 0.79 |
| Cost | 2.83 | 0.83 |

Slight improvements were observed for time and quality and a negative one for cost, likely due to higher costs for the CBA exercise. Given the value of the standard deviation the differences appear insignificant. However, client satisfaction and public acceptance show greater improvement. Depending on the project priorities, we can invest in better CBA and greater public consultations to buy acceptance and achieve higher client satisfaction.

### 4.3.4 Extent to which undertaking CBA increases chances of project success according to those who do it

Respondents were asked to rate on a five-point scale the extent to which they think undertaking CBA increases chances of project success. The results in table 4-8 were obtained.

*Table 4-8: The extent to which undertaking CBA increases chances of project success.*

| Extent | Frequency | Percent (%) |
|---|---|---|
| Not at all | 1 | 4 |
| Small | 2 | 9 |
| Moderate | 6 | 26 |
| Large | 8 | 35 |
| Very large | 6 | 26 |
| **Total** | **23** | **100** |

*Graph 4- 4: The extent to which undertaking CBA increases chances of project success.*

Based on the results from the table 4-8 and graph 4-4, a significant proportion think that undertaking CBA does indeed improve the chances of success of a project provided it is properly undertaken.

### 4.3.5 Extent to which major Assumptions of CBA make it less worthwhile to adopt.

On the extent to which the assumptions of CBA made it less worthwhile to adopt, table 4-9 shows the results that were obtained after ranking.

*Table 4-9: The extent to which Assumptions of CBA make it less worthwhile to adopt.*

| Assumption | Mean | Rank |
|---|---|---|
| Conception of reality as static rather than dynamic. | 3.87 | 1 |
| Assignment of market values to goods that do not have market value. | 3.78 | 2 |
| Giving primacy to the notion of efficiency, which may be one of the lesser social goals. | 3.78 | 2 |
| Rendering of past economic choices as sunk and hence as carrying no weight in making current choices. | 3.74 | 4 |
| Use of a constant rate of discount. | 3.57 | 5 |
| Only a few factors under analysis can be varied. | 3.30 | 6 |

The respondents ranked the assumption of conceiving reality as static rather than as dynamic the highest. The assignment of market values to goods that do not have market values and giving of primacy to the notion of efficiency also featured as major weaknesses.

### 4.3.6 Difficulties Encountered in Undertaking CBA

CBA is not a smooth technique, it has often been described as a very complex undertaking. Consequently the respondents who claim to undertake CBA were asked to indicate the difficulties they encounter in doing so. The responses were analyzed and ranked in order from the most persistent to the least. The results are shown in table 4-10.

*Table 4-10: Difficulties Encountered in Undertaking CBA.*

| Difficulty | Mean | Rank |
|---|---|---|
| Valuation of non-monetary effects, e.g. breathing polluted air. | 3.91 | 1 |
| Incorporating uncertainties such as changes in technology. | 3.78 | 2 |
| Establishing a mechanism for shadow pricing e.g. coming up with correction factors and standard correction factors. | 3.74 | 3 |
| Limited funds to undertake all phases of the project. | 3.65 | 4 |
| Inadequacy of data for evaluation | 3.61 | 5 |
| Valuation of labor, especially unskilled and semi-skilled. | 3.43 | 6 |
| Selection of a social discount rate | 3.39 | 7 |
| Difficulty obtaining information from the local people and the public. | 3.35 | 8 |
| Valuation of non-traded outputs and inputs e.g. transport or land. | 3.30 | 9 |
| Valuation of traded inputs and outputs. | 2.91 | 10 |
| Political interference. | 2.87 | 11 |

The top three problems encountered (ranks 1 - 3) have to do with valuation and shadow pricing for items that normally do not have market prices. In economic analysis the price is taken as given and subsequent analyses especially those involving order changes (e.g. multiplication and power factors), magnify the distortions inherent in such price estimates. Political interference is last probably because during planning stage, politicians are unaware, or too busy to pursue projects that may never see the light of day.

## 4.4 Those who do not undertake CBA but employ alternative methodologies

### 4.4.1 On the Use of Alternative Methodologies

Very few gave any other specific methodologies, four indicated that they use Cost Effectiveness Analysis. They were all from the health and education sectors where quantifying costs and benefits monetarily is generally absurd. The respondents were asked to indicate the advantages their methodologies had over CBA. The results are indicated in table 4-11.

*Table 4-11: Advantages of alternative methodologies pursued by the respondents as opposed to CBA.*

| Factor | Frequency | Rank |
|---|---|---|
| It is cheap to employ, i.e. it doesn't require use of expensive resources. | 6 | 1 |
| It deals very well with qualitative variables, which is a characteristic of health and education projects. | 5 | 2 |
| It doesn't require much data to undertake. | 4 | 3 |
| It is simple, i.e. it doesn't require much expertise to execute. | 4 | 3 |
| It is possible to vary more factors than can be varied in CBA. | 3 | 5 |
| Whatever data it requires is readily available. | 1 | 6 |
| It takes into account the fact that past economic choices are relevant and should be taken into account. | 1 | 7 |

Cost was the most important reason. This is probably because undertaking CBA requires significant use of resources, for example, hiring persons with adequate skills to undertake the exercise.

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| Whatever data it requires is readily available. | 1 | 6 |
| It takes into account the fact that past economic choices are relevant and should be taken into account. | 1 | 7 |

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### 4.4.2 Why some do not Use CBA

The 8 respondents, who indicated that they do not employ CBA, but employ alternative methodology, gave the reasons in table 4-12 for non-use of CBA in order from the most to the least important.

*Table 4-12: Why some do not Use CBA.*

| Factor | Mean | Rank |
|---|---|---|
| It does not deal very well with uncertainty. | 4.63 | 1 |
| It gives primacy to the notion of efficiency, which may be one of the lesser social goals. | 4.50 | 2 |
| It assigns market values to goods and services that do not have market value. | 4.38 | 3 |
| The appearance of providing simple answers to complex questions. | 4.38 | 3 |
| The social discount rate is just an opinion rendered in numerical form. | 4.38 | 3 |
| It conceives reality as static rather than as dynamic. | 4.38 | 3 |
| Inadequate data to undertake the exercise. | 4.13 | 7 |
| Subjectivity of decisions on what is included and excluded. | 4.13 | 7 |
| Use of a constant discount rate. | 3.88 | 9 |
| Renders past economic choices as sunk and hence as carrying no weight in making current choices. | 3.88 | 9 |
| It does not deal well with irreversible social losses, e.g. cultural and social values. | 3.75 | 11 |
| Expense of undertaking the exercise. | 3.63 | 12 |
| Lack of adequate skills in employing the technique. | 3.50 | 13 |
| Selectivity in incorporating externalities, where some externalities are simply ignored because they are hard to quantify. | 3.50 | 13 |
| Only a few factors can be varied at a time. | 3.25 | 15 |
| Much of its analysis is conducted away from public scrutiny. | 2.38 | 16 |
| Political interference. | 1.50 | 17 |

According to table 4-12, the top five reasons for those not using CBA are all related to its core tenets of imputing monetary values to all items for the sake of economic formulae geared towards efficiency. For example, the notion of a social discount rate is not easy to reduce to percentages. Lack of a dynamic conception of reality again features as a major weakness. A surprising finding is that political interference hardly features for it is the least important reason for not using CBA. It is frequently cited as a reason for poor project performance. Given the long time lag between project conception and implementation, project designers have relative freedom before politicians take notice during implementation and demand their "share" of the "spoils".

## 4.5 Those who do not undertake CBA or employ any other alternative methodology

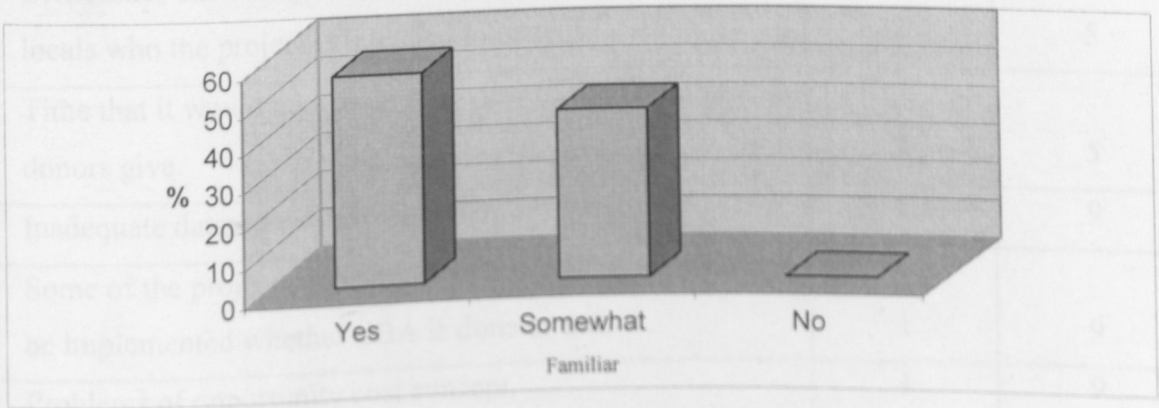
### 4.5.1 Familiarity with the concept of CBA

Of the 9 respondents who indicated that they do not undertake CBA nor employ any other methodology to achieve the same objectives, 5 of them indicated that they were familiar with the concept of CBA, 4 indicated that they were somewhat familiar while none of them indicated that they were not. This information is presented in the table 4-13 and graph 4-5.

*Table 4-13: Familiarity with the concept of CBA.*

| **Familiar** | **Frequency** | **Percent (%)** |
|---|---|---|
| Yes | 5 | 56 |
| Somewhat | 4 | 44 |
| No | 0 | 0 |
| **Total** | **9** | **100** |

*Graph 4-5: Familiarity with the concept of CBA.*



### 4.5.2 Reasons why this category of respondents chose to pursue this course

Table 4-14 shows the reasons that were cited by this category of people starting with the one with the highest frequency.

*Table 4-14: Reasons why this category of respondents chose to pursue this course.*

| Factor | Frequency | Rank |
|---|---|---|
| Lack of adequate skills to undertake the exercise. | 6 | 1 |
| Lack of adequate resources to undertake the exercise. | 5 | 2 |
| The unrealistic assumption of assigning market values to goods that do not have market values. | 4 | 3 |
| Feeling that it is a complex undertaking. | 4 | 3 |
| Feeling that whatever is done is in vain because the politicians decision will always take precedence over the analyst decision. | 2 | 5 |
| The unrealistic assumption of conceiving reality as static rather than as dynamic. | 2 | 5 |
| Difficulties sustained in determining what is best for the locals who the project is intended to benefit. | 2 | 5 |
| Time that it would take to do it in view of the time frame the donors give. | 2 | 5 |
| Inadequate data on various variables. | 1 | 9 |
| Some of the projects undertaken by the government have to be implemented whether CBA is done or not. | 1 | 9 |
| Problems of opportunity cost concept. | 1 | 9 |

According to table 4-14 majority of people who do not undertake CBA nor employ any other methodology cited lack of adequate skills and resources to undertake the exercise. This is the case even though most of them claim familiarity of the concept. There is therefore a challenge to the government to ensure that enough people are adequately trained to undertake the exercise continuously and consistently.

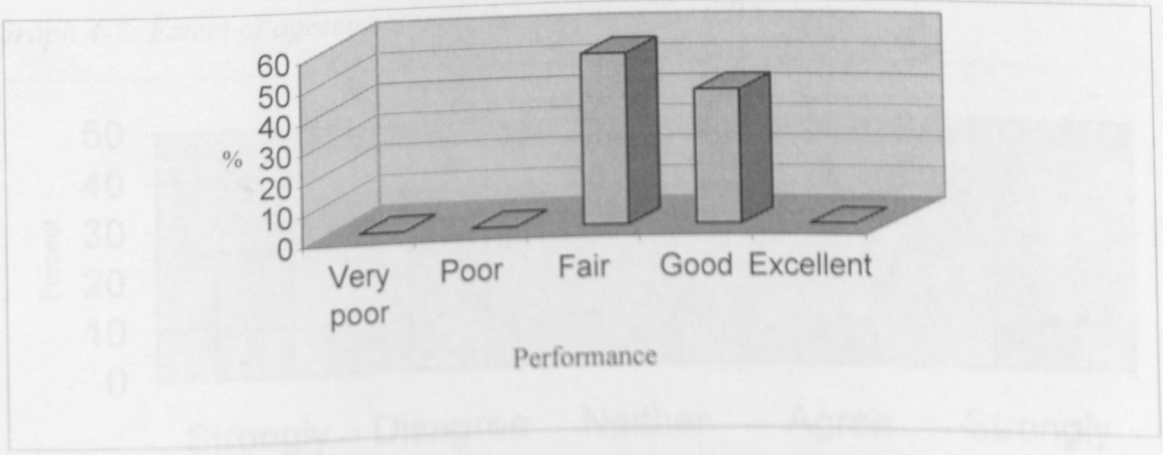
### 4.5.3 Performance of the projects they appraised.

This category of respondents was asked to rate the performance of the projects, which they have appraised on a five-point likert scale. The objective for this was to test whether indeed a project can perform well even if CBA is not undertaken on it. The results are shown in table 4-15 and graph 4-6.

*Table 4-15: Performance of the projects they appraised.*

| Performance | Frequency | Percent (%) | Total score |
|---|---|---|---|
| Very poor | 0 | 0 | 0 |
| Poor | 0 | 0 | 0 |
| Fair | 5 | 56 | 15 |
| Good | 4 | 44 | 16 |
| Excellent | 0 | 0 | 0 |
| **Total** | **9** | **100** | **31** |

*Graph 4-6: Performance of the projects they appraised.*




The average score came to 3.44, indicating that the projects, which these people appraise, perform slightly above average. This finding is very strange and should be subjected to further test. However this is beyond the scope of this research.

## 4.6 Overall Feelings About CBA

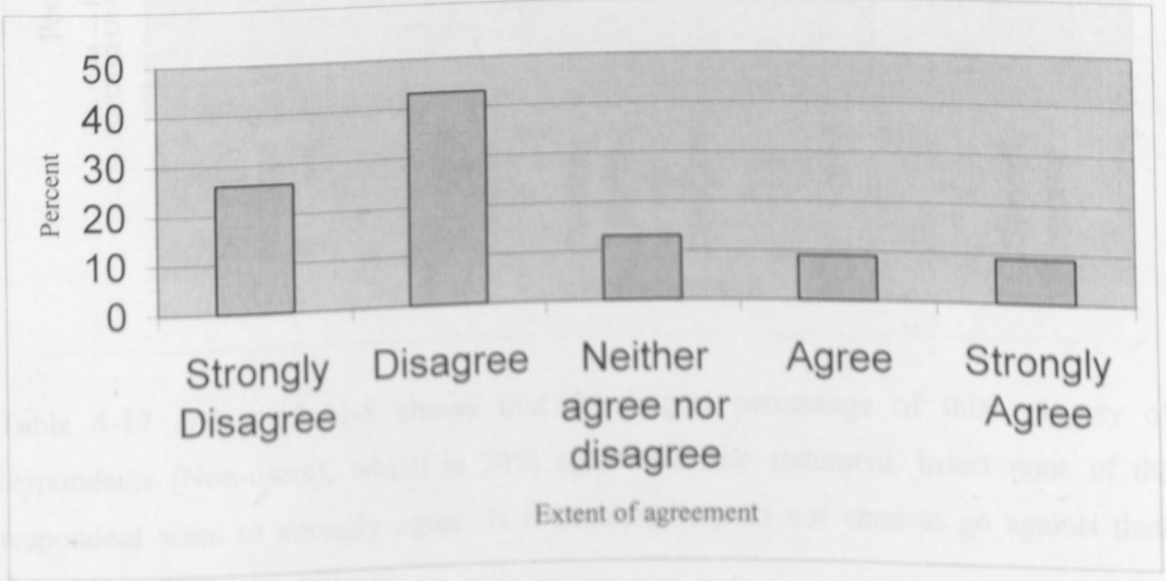
The respondents were asked to indicate the extent to which they agreed with the statement: ***"Social Cost-Benefit Analysis is in fact, nothing more than an idle academic exercise, of no use to serious minded practical project appraisers."***

The results were displayed first according to categories (i.e. users and non-users of CBA) and then later for both groups combined.

*Table 4-16: Extent of agreement with the statement for CBA users.*

| **Extent of agreement** | **Frequency** | **Percent (%)** |
|---|---|---|
| Strongly Disagree | 6 | 26 |
| Disagree | 10 | 43 |
| Neither agree nor disagree | 3 | 13 |
| Agree | 2 | 9 |
| Strongly Agree | 2 | 9 |
| **Total** | **23** | **100** |

*Graph 4-7: Extent of agreement with the statement for CBA users.*



From table 4-16 and the graph 4-7, it is obvious that a significant proportion of this category of respondents (users), which is 69%, disagree with this statement. Perhaps the likely reason is because they are already using it and it is usually very hard for anybody to admit that he/ she is employing a faulty technique.

*Table 4-17: Extent of agreement with the statement for CBA non-users.*

| **Extent of agreement** | **Frequency** | **Percent (%)** |
|---|---|---|
| Strongly disagree | 0 | 0 |
| Disagree | 1 | 13 |
| Neither agree nor disagree | 1 | 13 |
| Agree | 3 | 38 |
| Strongly agree | 3 | 38 |
| **Total** | **8** | **100** |

*Graph 4-8: Extent of agreement with the statement for CBA non-users.*

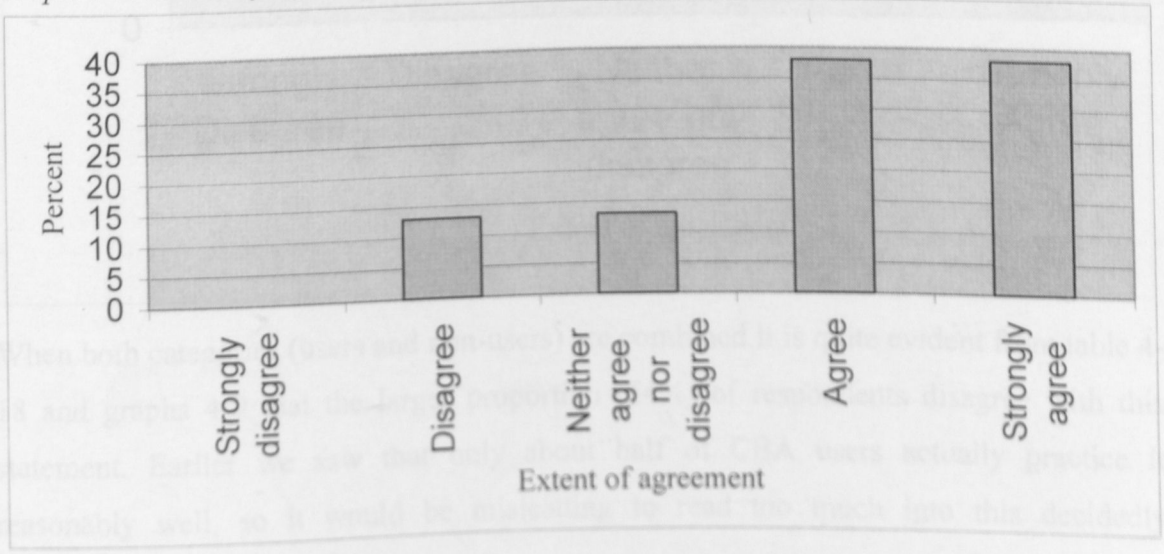
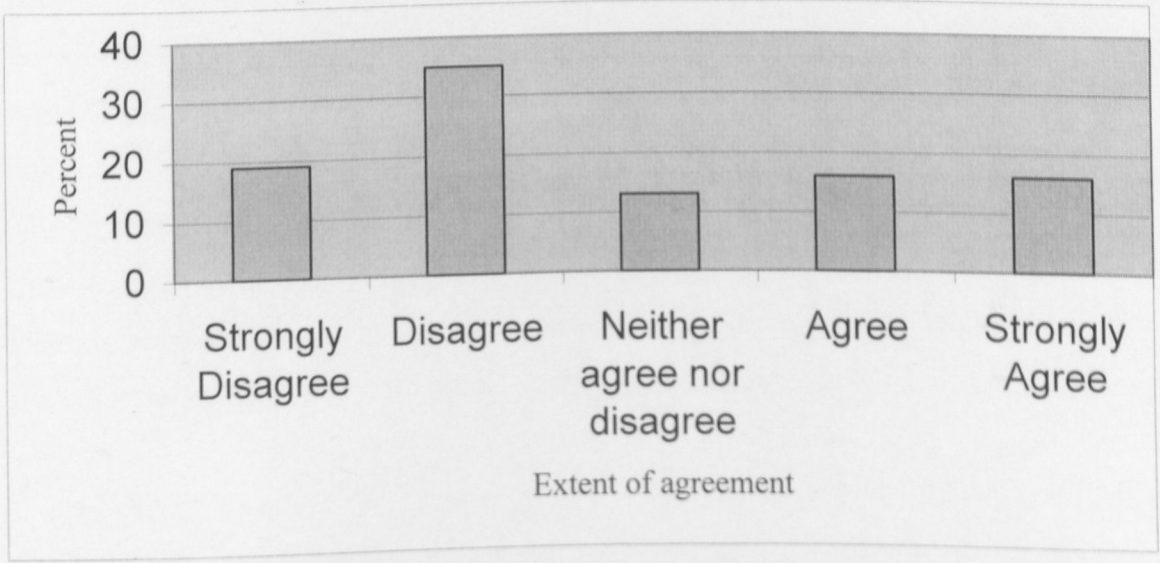



Table 4-17 and graph 4-8 shows that the largest percentage of this category of respondents (Non-users), which is 76% agree with the statement. Infact none of the respondent seem to strongly agree. Is it because they do not want to go against their beliefs that CBA is worthless?

*Table 4-18: Extent of agreement with the statement for both CBA users and non-users.*

| Extent of agreement | Frequency | Percent (%) |
|---|---|---|
| Strongly Disagree | 6 | 19 |
| Disagree | 11 | 35 |
| Neither agree nor disagree | 4 | 13 |
| Agree | 5 | 16 |
| Strongly Agree | 5 | 16 |
| **Total** | **31** | **100** |

*Graph 4-9: Extent of agreement with the statement for both CBA users and non-users.*




When both categories (users and non-users) are combined it is quite evident from table 4-18 and graphs 4-9 that the larger proportion (54%) of respondents disagree with this statement. Earlier we saw that only about half of CBA users actually practice it reasonably well, so it would be misleading to read too much into this decidedly subjective response.

*Table 4-19: Descriptive statistics of extent of agreement with the statement.*

| **Statistic** | **CBA Users** | **CBA Non Users** | **Both Users and Non-users** |
|---|---|---|---|
| Mean | 2.30 | 4.00 | 2.74 |
| Standard Deviation | 1.22 | 1.07 | 1.39 |

Responses correspond to the users revealed attitudes as for or against CBA. Users disagreed with the statement while non-users agreed. The standard deviation is relatively large showing that opinions vary widely across each class.

# *Chapter 5* CONCLUSIONS, RECOMMENDATIONS, LIMITATIONS AND SUGGESTIONS

## 5.1 Conclusions

Based on the findings of the study, one can safely conclude the following; First, that CBA has still not taken root in Kenya. To many in Kenya the discipline is still in its infancy stages, infact some do not know of such a technique while others only have a very slight idea of what it is. Even those who claim to undertake CBA are not all doing it right.

Second, the study also found out that for those who undertake this phase, the greatest difficulties they encounter have to do with valuation and shadow pricing for items that normally do not have market prices. This is complicated by the fact that analysts have to come up with their own correction factors and standard correction factors since the Ministry of planning and National Development, which is charged with this responsibility, does not have a shadow pricing office. Third, those who do not undertake CBA, give reasons that are all related to its core tenets of imputing monetary values to all items for the sake of economic formulae geared towards efficiency.

Finally, in spite of the fact that this branch of welfare economics has been widely criticized, undertaking CBA is not a futile exercise, it actually increases project performance. Simon (1982) remarks that "You can't beat something with nothing, you can't defeat a measure or a candidate simply by pointing to defects and inadequacies, you must offer an alternative[4]." The same principle applies to scientific theory, once a theory is well entrenched, it will survive many assaults of empirical evidence that purport to refute it unless an alternative theory, consistent with evidence, stands ready to replace it.

[4] Suggestion offered by Simon's 1978 Nobel Lecture (Simon, 1982, vol. 2, pp. 490- 491)

Therefore the researcher agrees with Dasgupta and Pearce (1972) that criticisms of CBA are only admissible if they can demonstrate alternative procedures are in someway superior. To this end, there must be a criteria for superiority e.g. whether the procedure is objective, whether it records society's preferences, whether it safeguards minority interests, gives adequate weight to heritage passed on to future generations and so on. Failure to agree on the criteria for what constitutes an acceptable criterion will of course account for much of the failure to agree on the desirability of using one particular prescriptive model such as CBA. Weick (1993) asserts that the most important issue, then, is to understand the circumstances under which CBA may be useful, and when it may result in misleading conclusions and decisions.

In conclusion, even if all is said and done, CBA still has serious limitations and hence it is important that analysts think seriously about how these limitations can be reduced or completely eliminated. Section 5.2.3 discusses a worthwhile proposal.

## 5.2 Recommendations

### 5.2.1 Measures to put in place to mitigate the effects of the difficulties encountered in undertaking CBA

The research recommends to the project analysts to take into account the following measures.

1. There should be a clear understanding of the prevailing local and external conditions before the commencement of the project. This would require the analysts to work hand in hand with the locals and spend more time in obtaining information. This would ensure that any figures arrived at as costs and benefits are realistic. Adequate measures should also be provided to capture the dynamism of the environment and there should be periodic evaluation and continuous monitoring of the environments.
2. Making appraisal a highly consultative process. The community, which the project is intended to benefit, should be educated on all the aspects of the public projects. This ensures that the beneficiaries are part and parcel of the process from pre-appraisal, appraisal, monitoring and evaluation and implementation.

3. Planning should be done in good time and contingency measures incorporated in the design and proper linkages developed between activities, outputs and results (impact).
4. When development projects do not perform as expected, managers and funding agencies want to understand why this happened. They may simply wish to learn from any mistakes made. It important that in a post-implementation audit, an analysis of the reasons for project failure to achieve its intended objective is done. The reason is to avoid such occurrences in the future and to help the analyst model future projects in such a way that uncertainties are incorporated in project planning. This leads to a need for the inclusion of discontinuous variables. Some of these variables will be exogenously driven but, more interestingly, some are endogenously driven.

### 5.2.2 Recommendations to the Government

The government should carry out the following responsibilities:

1. Ensure that enough people are trained to undertake the exercise continuously and consistently (for example in a university) and should ensure that candidates are well grounded in the theory of social project appraisal and an interpretation of conflicting argument within an overall working framework. This will certainly require time, money and manpower.
2. To strengthen the credibility of conclusions, the government should deploy a task force to collect data and compute the accounting prices of many inputs in Kenya. Moreover the existence of such a stock of approved prices would release appraisers to concentrate on more difficult decision problems and the overhead costs of preparing the estimates could be spread over very large number of projects which come up for government approval and greater consistency in making estimates would be secured.
3. It would also be helpful if the ministry could prepare a how-to do-it manual or acquire one wherever it is available and applicable. This would simplify the task of the appraiser, even if it does not excuse him from reading basic literature. Such a manual should be prepared by well-trained and experienced people with a good working knowledge of the structure of the Kenyan economy and relationships between the sectors.

Finally, the researcher is in agreement with Rwigema (1974) who remarks that, "it must be remembered that public sector project appraisal is not a panacea to all planning problems. Under competent hands it can indicate desirable investment opportunities on which to spend the country's scarce resources. Given its wider perspective regarding beneficiaries and losers, this would tend to encourage a more balanced economic development in the country. All that CBA can do is to show direction, and hope that such direction would improve the country's ability to increase its spending power in future.[5]"

### 5.2.3 Proposed way forward

One of the major limitations that make CBA less worthwhile to use is that it conceives reality as static rather than as dynamic and that only a few factors under CBA can be varied at a time. It is evident that an approach that takes into account dynamic reality and multiple variables without loss of information is desirable. The analytical space addressed by CBA is too complex and dynamic for its tools and techniques. Many practitioners vote with their feet by ignoring it in part or as a whole. One analyst from the World Bank flatly rejected it as impractical yet, the World Bank ought to be one of the greatest users. CBA addresses the unexplored terrain between the humanities and science. According to Bradbury (1998), two principal DIG[6] trees exist in this space - economics and psychology (experimental social science). Both are faulted for their Newtonian or Cartesian pretensions in view of their subject matter.

Addressing the problem of sustainable development, a goal and even catchword of most public projects today, Dempster (1998) concluded:

"Current approaches to planning and management are inadequate for achieving sustainability. Complexities, uncertainties, and interconnections among natural and social systems preclude the possibility of predicting and controlling future outcomes, yet these qualities are implicit in many

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[5] Rwigema, H. B., (1974), ***A Comparative Analysis of Little-Mirless' and Mishan's methods of valuing Social Costs and Benefits,*** Unpublished MBA thesis, University of Nairobi, pg 166.

[6] A DIG tree is a false lead following the story of two Australian brothers who perished after an expedition when they could not decipher the meaning of DIG inscribed on a tree at their base camp to guide them to provisions buried nearby. (Bradbury, 1998)

planning approaches. The rational-comprehensive model arising from the engineering paradigm, is increasingly questioned, but continues to underlie many planning processes. Achieving sustainability requires flexible, adaptive planning that is capable of recognizing uncertain futures, synergistic possibilities, differing perspectives, and multiple values."

We can no longer ignore the voices of countless researchers who have shown up the limitations of classical economics and other derivatives of industrial age mechanistic thinking when applied to social systems (Le Moigne, 1995). By using approaches derived from complex adaptive systems and systems thinking (Murthy, 1999; Senge, 1990; Forrester, 1969, 1971) we capture the dynamism and complexity of reality but sacrifice cybernetic control. These are more of heuristics than tools for prediction. The question then becomes "Can we live without being *sure* in mathematical terms?" The findings show that in practice, we can live with much less certainty than is generally assumed.

The heretical character of such a proposition is a hindrance for now as it threatens existing academic/social power structures (Murthy, 1999; Bradbury, 1998). Nevertheless, Newton and Descartes fig leaf is no longer sufficient for public projects appraisal and the case for change is compelling. More so, for third world countries whose economies are much less structured than developed ones (Packard, 1998). It is therefore high time that dynamic complexity models are employed.

## 5.3 Limitations of the Study

1. There was a time constraint in carrying out the research. Most project analysts who were targets for questionnaires were very busy most of the time and kept postponing the appointments. Given that there was very limited time for the research, this was a major constraint.
2. Most of the respondents were reluctant to participate in the research and had to be really convinced that it was only an academic exercise.
3. Use of descriptive statistics. Descriptive statistics tend to combine characteristics together hence individual characteristics do not come out.

## 5.4 Suggestions for further research

1. This was a survey of all project analysts, meaning that it did not emphasize so much on specific projects. It would therefore be necessary to undertake a research that takes real cases of projects in which CBA was claimed to have been done and go into the finer details of how it was done and whether it was done correctly, and in particular see whether there exist any correlation with the performance of the project.
2. The research found out that projects appraised by those who claim that they neither undertake CBA nor employ any other methodology perform good on average. Since the respondents were being asked their opinion, it may be important to subject this claim to further test in order to arrive at an objective conclusion.
3. There are generally three approaches used in CBA, namely Little-Mirrless Approach, UNIDO approach and The World Bank Approach. Donahue (1980) states that the approaches only differ in emphasis and methodological details, but the principle behind them is the same. A hypothesis has often been advanced that there is no significant difference among these methodologies. A study to test this hypothesis would be in order. This can be done by taking a real case of a project and proceeding to undertake CBA using all the three approaches.
4. CBA is normally appropriate for projects whose benefits are measurable in monetary terms and whose output has a market price that is relatively easy to assess. On the other hand Cost-effectiveness analysis is appropriate when projects or interventions aim to achieve multiple goals that are not measurable in monetary terms, e.g. education and health projects (Belli, Anderson, Barnum, Dixon, and Tan, 1998). This particular research focused on CBA. It would thus be necessary to carry out another research with the same objectives but this time the focus being on Cost-effectiveness analysis.
5. Weick (1993) asserts that the most important issue before undertaking CBA is to understand the circumstances under which CBA may be useful, and when it may result in misleading conclusions and decisions. A research should be carried out to determine the general conditions under which CBA can useful and when it might result in misleading conclusions and decisions.

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# APPENDICES

## APPENDIX I: Authorisation to conduct research from the Ministry of Education

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

Telegrams: "EDUCATION", Nairobi
Telephone: Nairobi 334411
When replying please quote

Ref. No. MOEST 13/001/33C 196/2
and date

JOGOO HOUSE "B"
HARAMBEE AVENUE
P.O. Box 30040
NAIROBI

11th August, 20 03

Stephen Ochieng Odock
University of Nairobi
P.O. BOX 30197
NAIROBI

Dear Sir

RE: RESEARCH AUTHORISATION

Following your application for authority to conduct research On ' An investigation of Social Cost benefit analysis practice in the appraisal of Public Development projects in Kenya, I am pleased to inorm you that you have been authorised to conduct research in Nairobi for a period ending 30th September, 2004.

You are advised to report to the Provincial Commissioner, Nairobi and the Provincial Director of Education Nairobi before embarking on your research project.

You are further advised to avail two copies of your research report to this Office upon completion of your research project.

Yours faithfully

A. G. KAARIA
FOR: PERMANENT SECRETARY/EDUCATION

CC
The Permanent Commissioner
Nairobi

The Provincial Director of Education
Nairobi

## APPENDIX III: Questionnaire

***Please answer the following questions according to instructions given.***

**PART A (General information)**

1. Indicate your academic level (Tick one).

   [ ] Non-degree colleges (Diploma, certificate, e.t.c.)

   [ ] Undergraduate degree

   [ ] Post graduate degree

   [ ] Other(s) (Please specify).....

2. Professional qualifications related to project management.....

   .....

   .....

3. What is your length of experience in project appraisal and management? (Tick one)

   [ ] Less than 5 year

   [ ] 5 – 10 years

   [ ] 10 – 15 years

   [ ] Above 15 years

4. Which of the following sector(s) do you appraise projects in? (Tick all that are applicable)

   [ ] Energy [ ] Water [ ] Roads

   [ ] Education [ ] Health [ ] Gender issues

   [ ] Environment [ ] Agriculture [ ] Financial sector

   [ ] Private sector development

   [ ] Other(s) (Please specify).....

   .....

5. Social Cost-Benefit Analysis (CBA) is a methodology developed for evaluating investment projects from the point of view of the society or economy as a whole. Have you ever undertaken Social Cost-Benefit Analysis? (Tick one)

   [ ] Yes [ ] No [ ] Sometimes

***If No go to Part C***

**PART B (For those who have undertake Social Cost-Benefit Analysis)**

***Section I (Methodology of Social Cost-Benefit Analysis)***

6. In valuing inputs and outputs of the project which prices do you use?

   [ ] International / World prices [ ] Domestic prices

   Other(s) (Please specify).....

7. With reference to which group do you measure the benefits of the project? (Tick one)

   [ ] High income [ ] Middle income [ ] Low income

8. Which of these uses of income made from the project do you attach the greatest weight? (Tick one)

   [ ] Consumption [ ] Investment [ ] Both

9. In arriving at the value of inputs and outputs, how often do you use shadow prices? (Tick one)

   [ ]Always [ ] Most times [ ] Sometimes [ ]Occasionally [ ] Never

10. Do you consider Transfer payments, e.g taxes, subsidies, duties, e.t.c when determining the value of inputs and outputs? (Tick one)

    [ ] Yes [ ] No [ ] Sometimes

11. Do you apply shadow wage rate to unskilled and semi-skilled labor? (Tick one)

    [ ] Yes [ ] No [ ] Sometimes

12. Do you apply shadow prices to non-traded inputs and outputs i.e. those goods and services that cannot be imported or exported, e.g. power and transport? (Tick one)

    [ ] Yes [ ] No [ ] Sometimes

13. Do you consider externalities, i.e., incidental, both positive and negative, outcomes of legitimate economic activity, which is beyond the controls of persons affected by it and cannot be traded in the market, e.g. pollution? (Tick one)

    [ ] Yes [ ] No [ ] Sometimes

14. Social Cost-Benefit Analysis requires that social values be articulated and then translated into clear, quantified parameters. How does the translation work? (Tick one)

[ ] Top-down approach where high level officials specify the priorities and commit them to numbers which are then passed down to project designers and evaluators.

[ ] Bottom-up approach where the project designers and evaluators does the work and then pass them up to political decision makers who further test and refine them.

[ ] Side-by-side approach where values are fixed collaboratively among all parties involved.

15. On average, to what extent do the actual results deviate from Social Cost-Benefit Analysis results on the valuation of the following inputs and outputs? (Tick one for each)

| | Very large | Large | Moderate | Small | Not at all |
|---|---|---|---|---|---|
| a) Traded inputs & outputs i.e. those goods and services, which can be exported or imported. | [ ] | [ ] | [ ] | [ ] | [ ] |
| b) Non-traded inputs & outputs i.e. those, which cannot be exported or imported e.g. transport. | [ ] | [ ] | [ ] | [ ] | [ ] |
| c) Externalities i.e., incidental, outcomes of legitimate economic activity, which is beyond the controls of persons affected by it e.g. pollution | [ ] | [ ] | [ ] | [ ] | [ ] |
| d) Labor inputs, both skilled and unskilled labor. | [ ] | [ ] | [ ] | [ ] | [ ] |
| e) Capital inputs e.g. facilities and equipment. | [ ] | [ ] | [ ] | [ ] | [ ] |
| f) Net present value | [ ] | [ ] | [ ] | [ ] | [ ] |

16. What would be your rating of the projects you have appraised with Social Cost-Benefit Analysis in relation to the achievement of the following project objectives? (Tick one for each)

| | Excellent | Good | Fair | Poor | Very poor |
|---|---|---|---|---|---|
| Time | [ ] | [ ] | [ ] | [ ] | [ ] |
| Cost | [ ] | [ ] | [ ] | [ ] | [ ] |
| Quality | [ ] | [ ] | [ ] | [ ] | [ ] |
| Client Satisfaction | [ ] | [ ] | [ ] | [ ] | [ ] |
| Public Acceptance | [ ] | [ ] | [ ] | [ ] | [ ] |

17. On the Overall, to what extent do you think undertaking Social Cost-Benefit Analysis increases chances for project success? (Tick one)

| Very large | Large | Moderate | Small | Not at all |
|---|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] | [ ] |

***Section II (Challenges encountered in undertaking Social Cost-Benefit Analysis)***

1. Indicate to what extent you encounter the following difficulties in undertaking Social Cost-Benefit Analysis. (Tick one for each)

| | Very large | Large | Moderate | Small | Not at all |
|---|---|---|---|---|---|
| a) Political interference. | [ ] | [ ] | [ ] | [ ] | [ ] |
| b) Difficulty obtaining information from the local people and the public in general. | [ ] | [ ] | [ ] | [ ] | [ ] |
| c) Valuation of traded inputs and outputs i.e. those, which are exportable or importable. | [ ] | [ ] | [ ] | [ ] | [ ] |
| d) Valuation of non-traded outputs and inputs i.e. those, which cannot be exported or imported e.g. transport or power. | [ ] | [ ] | [ ] | [ ] | [ ] |
| e) Valuation of labor, especially unskilled and semi-skilled labor. | [ ] | [ ] | [ ] | [ ] | [ ] |

f) Valuation of non-monetary effects e.g. unpleasantness of breathing polluted air. [ ] [ ] [ ] [ ] [ ]

g) Incorporating uncertainties such as changes in technology. [ ] [ ] [ ] [ ] [ ]

h) Inadequacy of data for evaluation. [ ] [ ] [ ] [ ] [ ]

i) Selection of a social discount rate. [ ] [ ] [ ] [ ] [ ]

j) Limited funds to undertake all phases of the process. [ ] [ ] [ ] [ ] [ ]

k) Establishing a mechanism for shadow pricing e.g. coming up with correction factors and standard correction factors. [ ] [ ] [ ] [ ] [ ]

l) Other(s) (please specify).....

.....

[ ] [ ] [ ] [ ] [ ]

.....

2. To what extent do the following assumptions of Social Cost-Benefit analysis makes it less worthwhile to adopt? (Tick one for each)

| | Very large | Large | Moderate | Small | Not at all |
|---|---|---|---|---|---|
| a. Conception of reality as static rather than dynamic. | [ ] | [ ] | [ ] | [ ] | [ ] |
| b. Use of a constant rate of discount. | [ ] | [ ] | [ ] | [ ] | [ ] |
| c. Only a few factors under analysis can be varied. | [ ] | [ ] | [ ] | [ ] | [ ] |
| d. Assignment of market values to goods that do not have market value. | [ ] | [ ] | [ ] | [ ] | [ ] |
| e. Rendering of past economic choices as sunk and hence as carrying no weight in making current choices. | [ ] | [ ] | [ ] | [ ] | [ ] |
| f. Giving primacy to the notion of efficiency, which may be one of the lesser social goals. | [ ] | [ ] | [ ] | [ ] | [ ] |

g. Other(s) (please specify).....

.....

[ ] [ ] [ ] [ ] [ ]

.....

[ ] [ ] [ ] [ ] [ ]

3. "Social Cost-Benefit Analysis is in fact, nothing more than an idle academic exercise, of no use to serious minded practical project appraisers." To what extent do you agree with this statement? (Tick one)

| Strongly Agree | Agree | Neither agree nor disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] | [ ] |

***Thank You Very Much for Your Cooperation***

**PART C (For those who do not undertake Social Cost-Benefit Analysis)**

1. Do you use any methodology to achieve the same objectives as Social Cost-Benefit analysis?

   [ ] Yes [ ] No

   ***If No Go to Part D***

2. If yes, briefly describe the methodology.

   .....

   .....

   .....

   .....

   .....

   .....

3. What advantages does your methodology have over Social Cost-Benefit Analysis? (Tick all that apply)

   [ ] It is cheap to employ i.e. it doesn't require the use of expensive resources.

   [ ] It deals very well with qualitative variables such as the unpleasantness of the environment.

   [ ] It doesn't require much data to undertake.

   [ ] Whatever data it requires is readily available.

   [ ] It is possible to vary more factors than can be varied in Social Cost-Benefit Analysis.

   [ ] It is simple, i.e. it doesn't require expertise to execute.

   [ ] It takes into account the fact that past economic choices are relevant and should be taken into account when making current choices.

   [ ] Other(s) (Please specify).....

   .....

   .....

   .....

   .....

4. Indicate to what extent the following factors contribute to your not employing Social Cost-Benefit Analysis? (Tick one for each)

| | Very large | Large | Moderate | Small | Not at all |
|---|---|---|---|---|---|
| a. Lack of adequate skills in employing the technique. | [ ] | [ ] | [ ] | [ ] | [ ] |
| b. Political interference. | [ ] | [ ] | [ ] | [ ] | [ ] |
| c. Expense of undertaking the exercise | [ ] | [ ] | [ ] | [ ] | [ ] |
| d. Inadequate data to undertake the analysis. | [ ] | [ ] | [ ] | [ ] | [ ] |
| e. Much of its analysis is conducted away from public scrutiny. | [ ] | [ ] | [ ] | [ ] | [ ] |
| f. It assigns market values to goods that do not have market value. | [ ] | [ ] | [ ] | [ ] | [ ] |
| g. The appearance of providing simple answers to complex questions. | [ ] | [ ] | [ ] | [ ] | [ ] |
| h. Subjectivity of decisions on what is included and excluded. | [ ] | [ ] | [ ] | [ ] | [ ] |
| i. Use of a constant rate of discount. | [ ] | [ ] | [ ] | [ ] | [ ] |
| j. It doesn't deal very well with uncertainty | [ ] | [ ] | [ ] | [ ] | [ ] |
| k. Only a few factors can be varied at a time. | [ ] | [ ] | [ ] | [ ] | [ ] |
| l. The social discount is just an opinion rendered in numerical form. | [ ] | [ ] | [ ] | [ ] | [ ] |
| m. Renders past economic choices as sunk and hence as carrying no weight in making current choices. | [ ] | [ ] | [ ] | [ ] | [ ] |
| n. It conceives reality as static rather than dynamic. | [ ] | [ ] | [ ] | [ ] | [ ] |
| o. It gives primacy to the notion of efficiency, which may be one of the lesser social goals. | [ ] | [ ] | [ ] | [ ] | [ ] |
| p. Selectivity in incorporating externalities | | | | | |

where some externalities are simply ignored because they are hard to quantify. [ ] [ ] [ ] [ ] [ ]

q. It doesn't deal well with irreversible social losses e.g. cultural and social values. [ ] [ ] [ ] [ ] [ ]

r. Other(s) (Please specify).....
.....
[ ] [ ] [ ] [ ] [ ]

5. "Social Cost-Benefit Analysis is in fact, nothing more than an idle academic exercise, of no use to serious minded practical project appraisers." To what extent do you agree with this statement? (Tick one)

| Strongly Agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree |
|---|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] | [ ] |

***Thank You Very Much for Your Cooperation***

**PART D (For who do not undertake Social Cost-Benefit Analysis or employ any other alternative methodology)**

1. Are you familiar with the concept of evaluating projects from the point of view of the society as a whole? (Tick one)

   [ ] Yes [ ] No [ ] Somewhat

   ***If No move to question 3***

2. What then are your reasons for not employing Social Cost-Benefit Analysis or any other methodology for that matter? (Tick all that are applicable)

   [ ] Lack of adequate skills to undertake the exercise.

   [ ] Lack of adequate resources to undertake the exercise.

   [ ] The unrealistic assumption of assigning market values to goods that do not have market value.

   [ ] Feeling that it is a complex undertaking that requires extreme tolerance in employing economic and quantitative theory.

   [ ] Feeling that whatever is done is always in vain because the politicians' decision will always take precedence over the analysts' decision.

   [ ] The unrealistic assumption of conceiving reality as static rather than as dynamic.

   [ ] Difficulties sustained in determining what is best for the locals who the project is intended to benefit.

   [ ] Other(s) (Please specify).....

   .....

   .....

   .....

   .....

3. On average how would you rate the performance of projects that you have appraised? (Tick one)

| Excellent | Good | Fair | Poor | Very poor |
|---|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] | [ ] |

***Thank You Very Much for Your Cooperation***

## APPENDIX IV: List of Persons who responded to the questionnaires

| | |
|---|---|
| 1. | Programme officer, European Union |
| 2. | Senior Lecturer, Department of Community Health, Medical school, University of Nairobi. |
| 3. | Senior Lecturer, Department of Economics, University of Nairobi and Director, Africa Centre for Economic Growth (ACEG). |
| 4. | Director, International Development Research Centre (IDRC). |
| 5. | Consultant and Research Fellow in Health Economics, African Population and Health Research Centre (APHRC). |
| 6. | Program coordinator, Action Aid. |
| 7. | Programme Officer, World Vision. |
| 8. | Principal Engineer-Civil / Roads, Horward Humphreys (East Africa) Ltd, Consulting Engineers |
| 9. | Project Coordinator, Kenya, World Health Organization (WHO). |
| 10. | Programme Development Officer, African Medical and Research Foundation (AMREF). |
| 11. | Senior Lecturer, Department of Management Science, University of Nairobi. |
| 12. | Project officer, Japan Information Desk, Ministry of Planning and National Development. |
| 13. | Chief Programme officer, Catholic Relief Services (CRS). |
| 14. | Project Development officer, USAID |
| 15. | Consultant and Lecturer, Department of Business Administration, Faculty of Commerce, University of Nairobi. |
| 16. | Project Officer in the Ministry of Agriculture. |
| 17. | Senior Lecturer, Department of Land Economics, University of Nairobi. On the Ndakaini Water project. |
| 18. | Senior Education Officer and Project Officer, Early Childhood Development project, Ministry of Education, Science and Technology. |
| 19. | Project Development Officer, United Nations Habitat (UN-Habitat). |
| 20. | Programme Officer, Medecin Sans Frontier (MSF), Spain. |
| 21. | Programme Manager, Medecin Sans Frontier (MSF), France. |
| 22. | Project Officer, Ministry of Roads, Housing and Public Works. |
| 23. | Lecturer, Department of Management Science, University of Nairobi. |
| 24. | Programme Officer, Ford foundation. |
| 25. | World Bank, Chief coordinator in Kenya for Energy, and Agricultural projects |
| 26. | World Bank, Chief coordinator in Kenya for Water and Roads projects. |
| 27. | Programme Officer (Environment), Japan International Cooperation Agency (JICA). |
| 28. | Project Consultant, for the Office of the President, on The El-Nino Emergency project. |
| 29. | Project Consultant, Gibbs Consulting Engineers. |
| 30. | Project Consultant, Gaath Consulting Engineers. |
| 31. | Project Coordinator, SIDA. |
| 32. | Donor Liaison Officer, Kenya Wildlife Services (KWS). |
| 33. | Project Development Officer, DFID. |
| 34. | Country Director, German technical Cooperation (GTZ). |
| 35. | Lecturer, Department of Land Economics, University of Nairobi. |
| 36. | Chief Deputy Economist, Ministry of Wildlife Environment and Natural Resources. |
| 37. | Chief Economist, Ministry of Information and Tourism |
| 38. | Chief Economist, Ministry of Local Government |
| 39. | Project Consultant for the Ministry of Energy. |
| 40. | Project Consultant for The Ministry of Water. |